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Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General**

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** Pursuant to General Assembly resolution 56/12 of 28 November 2001, this report is to be submitted to the General Assembly at its fifty-seventh session. However, by its resolution 54/33 of 24 November 1999, the Assembly requested that the report should be made available to the Open-ended Informal Consultative Process established by that resolution, for its consideration. The meeting of the Process is scheduled to be held from 8 to 15 April 2002.

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Abbreviations

ABLOS	Advisory Board on Geodetic, Hydrographic and Marine Geo-Scientific Aspects of the Law of the Sea (Advisory Board on the Technical Aspects of the Law of the Sea)
APFIC	Asia-Pacific Fishery Commission
ARGO	Array for Real-time Geostrophic Oceanography
CARICOM	Caribbean Community
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CLIVAR	Climate Variability and Predictability Study
CNES	Centre Nationale d'Études Spatiales (France)
COLREG	Convention on the International Regulations for Preventing Collisions at Sea, 1972
ECLAC	Economic Commission for Latin America and the Caribbean
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
FFA	Forum Fisheries Agency
GCOS	Global Climate Observing System
GCRMN	Global Coral Reef Monitoring Network
GEF	Global Environment Facility
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GFCM	General Fisheries Commission (formerly General Fisheries Council) for the Mediterranean
GIS	Geographic Information System
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
GTOS	Global Terrestrial Observing System
HELCOM	Baltic Marine Environment Protection Commission (Helsinki Commission)
IAEA	International Atomic Energy Agency
I-ATTC	Inter-American Tropical Tuna Commission

IBSFC	International Baltic Sea Fishery Commission
ICAM	integrated coastal area management
ICC	International Chamber of Commerce
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICRI	International Coral Reef Initiative
ICJ	International Court of Justice
ICSPRO	Inter-Secretariat Committee on Scientific Programmes relating to Oceanography
ICSU	International Council for Science
IGOS	Integrated Global Observing Strategy (GOOS, GTOS and GCOS)
IHO	International Hydrographic Organization
INF Code	International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IODE	International Oceanographic Data and Information Exchange programme
IOTC	Indian Ocean Tuna Commission
IPCC	Intergovernmental Panel on Climate Change
IPHC	International Pacific Halibut Commission
ISM Code	International Safety Management Code
IUCN	The World Conservation Union
IUU fishing	illegal, unreported and unregulated fishing
IWC	International Whaling Commission
LL	International Convention on Load Lines
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
MEPC	IMO Marine Environment Protection Committee
MSC	IMO Maritime Safety Committee
NAFO	Northwest Atlantic Fisheries Organization
NASA	National Aeronautics and Space Administration (United States of America)
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North-East Atlantic Fisheries Commission

NOAA	National Oceanic and Atmospheric Administration (United States)
NODCs	National Oceanographic Data Centres
OECD	Organisation for Economic Cooperation and Development
OSPAR	Commission for the protection of the Marine Environment of the North-East Atlantic
PAME	Protection of the Arctic Marine Environment (Arctic Council)
PERSGA	Regional Organization for the Conservation of the Red Sea and the Gulf of Aden
POPs	persistent organic pollutants
ROPME	Regional Organization for the Protection of the Marine Environment
SAR Convention	International Convention on Maritime Search and Rescue
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice (Conference of Parties to Convention on Biological Diversity)
SCOR	Scientific Committee on Ocean Research (ICSU)
SOCA	Subcommittee on Oceans and Coastal Areas of the Administrative Committee on Coordination
SOLAS	International Convention for the Safety of Life at Sea
SOPAC	South Pacific Applied Geoscience Commission
SPREP	South Pacific Regional Environment Programme
STCW Convention	1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
STCW-F	1995 International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel
SUA Convention	1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNU	United Nations University
VDRs	voyage data recorders
VMS	vessel monitoring system
VOS	Voluntary Observing Ships scheme (WMO)

WHO	**World Health Organization**
WOCE	**World Ocean Circulation Experiment**
WSSCC	**Water Supply and Sanitation Collaborative Council**

I. Overview

1. "The importance of the world ocean as a potential supplier of goods (food, fibre, genetic resources, metals, minerals), services (trade routes, tourism), energy, and as a repository of national, regional, and global security cannot be overstated. Above all, however, the world ocean is an essential part of the biosphere; it is a crucial factor in the carbon cycle and a determinant of the planet's climate ... The ocean's contribution of 'ecosystem services' is very much larger than that of terra firma."[1]

2. This year is a significant year for the world's oceans and seas: it marks the twentieth anniversary of the opening for signature of the United Nations Convention on the Law of the Sea (UNCLOS), "a Constitution for the oceans", and the tenth anniversary of the adoption of Agenda 21, a programme of action for sustainable development, chapter 17 of which puts forward a programme of action for the sustainable development of the world's oceans and seas and their resources. The United Nations General Assembly decided to devote two days of plenary meetings at its fifty-seventh session, on 9 and 10 December 2002, to the consideration of the item entitled "Oceans and the law of the sea" and the commemoration of the twentieth anniversary of the opening for signature of the Convention. The World Summit on Sustainable Development, to be held in Johannesburg, South Africa, in August 2002, will carry out a 10-year review of Agenda 21, including, expectedly, the programme of action on "oceans and seas" in the context of natural resources and in connection with the theme relating to small island developing States.

3. Today, 20 years after the adoption of the Convention, it is fast approaching universal participation. One hundred twenty-one coastal States, 16 landlocked States and one international organization are parties to the Convention, 138 in total. All regions are represented: of a total of 53 African States, 38 are parties; of 59 Asian States, 40 are parties; Europe and North America is represented by 32 parties a total of 48 States, and by the European Community; while of 33 Latin American and Caribbean States, 27 are parties. The compliance with the provisions of the Convention, especially regarding the limits of maritime zones under national jurisdiction, is also remarkable.

4. The three institutions created by the Convention are operational and functioning effectively. The International Seabed Authority, which deals with the international seabed area beyond national jurisdiction (the Area) and its resources, has approved the plans of work of seven registered pioneer investors for exploration of polymetallic nodules in the Area and issued contracts for exploration to all but one of them. The International Tribunal for the Law of the Sea, a court dealing with the interpretation or application of the Convention, has already heard 10 cases. The Commission on the Limits of the Continental Shelf, which deals with the outer limits of the outermost maritime zone under national jurisdiction, the continental shelf, beyond 200 nautical miles from the baselines, has received its first submission.

5. The Meeting of States Parties to the Convention has already had 11 sessions and is showing increasing interest in the issues relating to the implementation of the Convention. With the entry into force of the Convention, the General Assembly assumed the role of overseeing developments relating to the Convention, law of the sea and ocean affairs in general, and carries out an annual review of such developments under a consolidated agenda item entitled "Oceans and the law of the sea". Furthermore, in 1999, the General Assembly, consistent with the legal framework provided by UNCLOS and the goals of chapter 17 of Agenda 21, established an open-ended informal consultative process in order to facilitate its annual review, in an effective and constructive manner, of developments in ocean affairs. This year, the Assembly is to review the effectiveness and utility of this process. The United Nations is fulfilling efficiently the responsibilities entrusted to it by the Convention and the related resolutions of the General Assembly, and is functioning as the de facto secretariat of the Convention.

6. International instruments emanating from the Convention and Agenda 21 are many and varied. Two that are directly related to the implementation of the Convention have already entered into force: the Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 ("Agreement on Part XI of UNCLOS") and the Agreement on the implementation of the provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the conservation and management of straddling fish stocks

and highly migratory fish stocks ("1995 Fish Stocks Agreement").

7. Today, 20 years after the adoption of the Convention and 10 years after the adoption of Agenda 21, including its chapter 17, the accomplishments are impressive. But the challenges are also formidable — of implementing the legal and programmatic frameworks, of executing actions, at the global, regional and national levels, to realize benefits from these frameworks. Many countries are finding their awareness and knowledge to be scanty and unfocused, their resources scarce, their capacity limited and their means of implementation inadequate.

8. Thus, in this anniversary year, the international community should focus its efforts on actions that would contribute to the realization of optimal benefits from the world's oceans and seas, at the same time minimizing the problems that have arisen, especially with regard to the limitations in harnessing the marine potential and the degradation of the marine environment and resources.

9. At the national level, for example, the Director of a leading ocean institute, the Woods Hole Oceanographic Institution in Massachusetts, United States of America, states: "The newly created [United States] Ocean Commission, established last year by the Oceans Act of 2000, will have the opportunity to make the study of our oceans a national priority. The Commission, made up of scientists and representatives of government and business, will soon begin meeting and making recommendations to the president and Congress for new policies relating to our oceans".[2]

10. At the regional level, as an example, the South Pacific Applied Geoscience Commission (SOPAC) reports: "Regional priorities for the marine sector are ... set by Governments of the Pacific region and are reflected in work programmes of the respective ministries (at the national level) and regional intergovernmental agencies (at the regional level). In the regional context these priorities are consolidated within the Committee on Regional Organizations of the Pacific "Regional Strategy".

11. At the global level, oceans occupy an important part of the work of the United Nations system. The newly established consultative process on oceans and the Millennium Ecosystem Assessment constitute two significant examples. The latter, which was initiated in June 2001, will examine the processes that support life on Earth, such as the world's grasslands, farmlands, forests, rivers and lakes, and oceans. It is intended to improve the management of the world's natural and managed ecosystems by helping meet the needs of decision makers in government and the private sector as well as the public for peer-reviewed policy-relevant scientific information on the condition of ecosystems, the consequences of ecosystem change and options for response.

II. The United Nations Convention on the Law of the Sea and its implementing Agreements

A. Status of the Convention and its implementing Agreements

12. The importance of increasing the number of States parties to the Convention and the Agreement relating to the implementation of Part XI of the Convention in order to achieve the goal of universal participation was stressed yet another time by the General Assembly in its resolution 56/12 of 28 November 2001. The General Assembly has traditionally reiterated its call upon all States that have not done so to become parties to these instruments. Since the issuance of the most recent report (A/56/58/Add.1), Hungary ratified UNCLOS in February 2002; the number of States parties has thus increased to 138, including one international organization.[3]

13. There is little doubt that over the years the legal regime established by the Convention has reached almost universal acceptance. However, further efforts need to be expended in order for the goal of universal participation to be realized. Thirty (30) coastal States out of 151 are not yet parties to the Convention: 5 States in the African region (Congo, Eritrea, Liberia, Libyan Arab Jamahiriya and Morocco); 12 States in the Asian and Pacific region (Cambodia, Democratic People's Republic of Korea, Iran (Islamic Republic of), Israel, Kiribati, Niue, Qatar, Syrian Arab Republic, Thailand, Turkey, Tuvalu and United Arab Emirates); 7 States in Europe and North America (Albania, Canada, Denmark, Estonia, Latvia, Lithuania and United States of America); and 6 States in the Latin American and Caribbean region (Colombia, Dominican Republic, Ecuador, El Salvador, Peru and Venezuela).

More than a half of the landlocked States — 26 States out of 42 — also remain outside the legal framework, despite the unquestionable benefits provided to them by the provisions of Part X of UNCLOS. These States are: Afghanistan, Andorra, Armenia, Azerbaijan, Belarus, Bhutan, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Holy See, Kazakhstan, Kyrgyzstan, Lesotho, Liechtenstein, Malawi, Niger, Republic of Moldova, Rwanda, San Marino, Swaziland, Switzerland, Tajikistan, Turkmenistan and Uzbekistan.

14. In 1994, the Agreement relating to the implementation of Part XI of UNCLOS became an inseparable part of the Convention. Adopted on 28 July 1994 by the General Assembly in its resolution 48/263 and in force since 28 July 1996, the Agreement is to be interpreted and applied together with UNCLOS as a single instrument. In the event of any inconsistency between the Agreement and Part XI of UNCLOS, the provisions of the Agreement prevail. After 28 July 1994, any ratification of or accession to UNCLOS represents consent to be bound by the Agreement as well. Furthermore, no State or entity can establish its consent to be bound by the Agreement unless it has previously established or establishes concurrently its consent to be bound by UNCLOS. The Agreement had been negotiated to address certain outstanding issues relating to the deep seabed mining provisions of UNCLOS which prevented some States from ratifying or acceding to the Convention, and thereby to facilitate the widest possible participation in the Convention.

15. One hundred and four States parties to UNCLOS are now parties to that Agreement. The difference between the number of States parties to the Convention and the number of States parties to the Agreement is explained by the fact that 34 States which became parties to the Convention prior to the adoption of the Agreement on Part XI have not yet expressed their consent to be bound by the Agreement. Those States, however, participated in the work of the International Seabed Authority and its organs established on the basis of the Agreement. As such, they are considered to be applying the Agreement de facto. Those States are: Angola, Antigua and Barbuda, Bahrain, Bosnia and Herzegovina, Botswana, Brazil, Cameroon, Cape Verde, Comoros, Cuba, Democratic Republic of the Congo, Djibouti, Dominica, Egypt, Gambia, Ghana, Guinea-Bissau, Guyana, Honduras, Iraq, Kuwait, Mali, Marshall Islands, Mexico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sao Tome and Principe, Somalia, Sudan, Tunisia, Uruguay, Viet Nam and Yemen.

16. The 1995 Agreement for the implementation of the provisions of UNCLOS relating to the conservation and management of straddling fish stocks and highly migratory fish stocks entered into force on 11 December 2001, six years after its opening for signature. The requirements for its entry into force had been met 30 days earlier, on 11 November 2001, when Malta deposited its instrument of accession (the thirtieth instrument required by article 40) with the Secretary-General.

17. The entry into force of the 1995 Fish Stocks Agreement was a result of important efforts undertaken by international organizations and States with a view to enhancing the legal regime established by the Convention with respect to the straddling fish stocks and highly migratory fish stocks. A particularly important role in the promotion of the Agreement was played by the Food and Agriculture Organization of the United Nations (FAO) and a number of States, inter alia, Norway, the United States of America and States members of the Pacific Islands Forum Group. Although few, if any, of the current parties to the Agreement could be considered as belonging to the group of important distant-water fishing countries, it is expected that, with a forthcoming simultaneous action by the European Community and its members, there will be a big qualitative change in the participation and its representativeness.

18. In anticipation of the entry into force of the Agreement, the General Assembly, in its resolution 56/13 of 28 November 2001, requested the Secretary-General to consult with States that have either ratified or acceded to the Agreement, for the purposes and objectives of, inter alia, considering the regional, subregional and global implementation of the Agreement; making any appropriate recommendation to the General Assembly on the scope and content of the annual report of the Secretary-General relating to the Agreement; and preparing for the review conference to be convened by the Secretary-General pursuant to article 36 of the Agreement. Another possible agenda item for the consultation may be the facilitation of the establishment of a programme of assistance within the Agreement. Such consultations should take place within the first six months of 2002

and the information about the outcome will appear in the addendum to the present report.

19. Currently, there are 31 parties to the Agreement, including the United Kingdom of Great Britain and Northern Ireland, which ratified it on behalf of its Overseas Territories. There are 10 States from the South Pacific region that are parties (Australia, Cook Islands, Fiji, Micronesia (Federated States of), Nauru, New Zealand, Papua New Guinea, Samoa, Solomon Islands and Tonga), 2 from North America (Canada and United States of America), 6 from the Latin American and Caribbean region (Bahamas, Barbados, Brazil, Costa Rica, Saint Lucia and Uruguay), 5 from among European States (Iceland, Malta, Monaco, Norway and Russian Federation), 4 from among African States (Mauritius, Namibia, Senegal and Seychelles) and 3 from among Asian States (Iran (Islamic Republic of), Maldives and Sri Lanka).

20. Thus, owing to the level of participation and various geographical factors, the regime established by the Agreements already covers substantial parts of the zones adjacent to the exclusive economic zones of States parties in the South Pacific, the North-West and South-West Atlantic, the northern part of the North Pacific Ocean, as well as the Arctic Ocean.

B. Declarations and statements under articles 310 and 287 of UNCLOS

21. The General Assembly in its resolution 56/12 repeated its call upon States to ensure that any declarations or statements that they have made or make when signing, ratifying or acceding to the Convention are in conformity therewith and, otherwise, to withdraw any of their declarations or statements that are not in conformity. To this day, no action by States parties in this connection has been reported.

22. Pursuant to article 310, States may, when signing, ratifying or acceding to the Convention, make declarations or statements, provided that such declarations or statements do not purport to exclude or to modify the legal effect of the provisions of UNCLOS in their application to that State. Article 309 prohibits any reservations or exceptions to UNCLOS unless expressly permitted by other UNCLOS articles. It is recalled that several States had noted during the General Assembly debates on oceans and the law of the sea that certain declaration and statements appeared not to be in conformity with article 309. The categories of such declarations and statements were listed in the 1999 report (A/54/429, para. 16); they include: (a) those which relate to baselines not drawn in conformity with UNCLOS; (b) those which purport to require notification or permission before warships or other ships exercise the right of innocent passage; (c) those which are not in conformity with the provisions of UNCLOS relating to: (i) straits used for international navigation, including the right of transit passage; (ii) archipelagic States' waters, including archipelagic baselines and archipelagic sea-lane passage; (iii) the exclusive economic zone or the continental shelf; and (iv) delimitation; and (d) those which purport to subordinate the interpretation or application of UNCLOS to national laws and regulations, including constitutional provisions.

23. The Secretary-General considers that any appropriate action by States concerned, with a view to responding to the General Assembly's appeal, would represent a substantial step towards a uniform and consistent application of the Convention. On the other hand, it must be recognized that some of the above declarations and statements were motivated by certain underlying and legitimate concerns of States. The need for alleviating such concerns should not be ignored. They should be identified and addressed in an effective manner within the framework of competent international organizations or bodies.

24. Article 287 of UNCLOS allows States, when signing, ratifying or acceding to UNCLOS or any time thereafter, to choose, by means of a written declaration, one or more of specific means for the settlement of disputes concerning the interpretation or application of the Convention. Since the issuance of the last report (A/56/58 and Add.1), two declarations have been made pursuant to that article. Slovenia declared that it had chosen an arbitral tribunal constituted in accordance with Annex VII for the settlement of disputes concerning the interpretation or application of the Convention. Hungary declared that it had chosen, pursuant to article 287 of UNCLOS and in order of preference, (a) the International Tribunal for the Law of the Sea; (b) the International Court of Justice; and (c) a special tribunal constructed in accordance with Annex VIII for all the categories of disputes specified therein.

25. Under article 298, a State may, when signing, ratifying or acceding to UNCLOS or at any time

thereafter, declare in writing that it does not accept any one or more of the compulsory procedures entailing binding decisions provided for in section 2 of Part XV of UNCLOS with respect to one or more of specific categories of disputes. Since the issuance of the most recent report, Slovenia declared that it did not accept an arbitral tribunal constituted in accordance with Annex VII for any of the categories of disputes mentioned in article 298. Also, Equatorial Guinea declared that it does not recognize any of the procedures mentioned in section 2 of Part XV as compulsory "ipso facto" in regard to the categories of disputes listed in paragraph 1 (a) of article 298 (disputes concerning the interpretation or application of articles 15, 74 and 83 relating to sea boundary delimitations, or those involving historic bays or titles).

26. In total, declarations upon ratification, accession or formal confirmation of UNCLOS have been made by 50 States and the European Community. All declarations and statements with respect to UNCLOS and to the Agreement relating to the implementation of Part XI of UNCLOS made before 31 December 1996 have been analysed and reproduced in a United Nations publication in the Law of the Sea series; full texts of those made after that date have been circulated to Member States in depositary notifications and have been published in Law of the Sea Bulletins, Nos. 36-47. They are also available at the web site of the Division for Ocean Affairs and the Law of the Sea of the United Nations Office of Legal Affairs (www.un.org/Depts/los) as well as that of the Treaty Section of the United Nations (www.un.org/Depts/Treaty). The information concerning the choice of procedure, as provided for in article 287, is reflected, among others, in Law of the Sea Information Circulars Nos. 14 and 15.

27. Concerning the 1995 Fish Stocks Agreement, Malta made a declaration upon accession on 11 November 2001. Among other things, Malta stated its view that the requirements of implementing the 1995 Agreement ought to be in conformity with the 1982 United Nations Convention on the Law of the Sea and that no provision of this Agreement might be interpreted in such a way as to conflict with the principle of freedom of the high seas, and of flag State exclusive jurisdiction over its vessels on the high seas as recognized by international law.

28. Malta's declaration also contained other paragraphs of an interpretative nature regarding articles 21 (Subregional and regional cooperation in enforcement) and 22 (Basic procedures for boarding and inspection pursuant to article 21). Its declaration also referred to the statement by the European Community made at the time of signature of the Agreement regarding the transfer of competences to it by its member States with regard to certain aspects of the Agreement and indicated that such transfer would also become applicable to Malta when it joins the European Community.

29. Thus, as at February 2002, eight States had made declarations upon ratification of or accession to the 1995 Fish Stocks Agreement.

30. In another development, on 10 December 2001, the depositary accepted a ratification of the 1995 Fish Stocks Agreement by the United Kingdom in respect of its Overseas Territories. Originally, the depositary was not in a position to accept the original instrument, lodged in December 1999, as a ratification, since it differed from the United Kingdom's practice, which consisted of ratifying certain treaties in respect of the United Kingdom's metropolitan territory and later extending them to its Overseas Territories. In this particular case, the instrument of ratification of December 1999 related only to the Overseas Territories, while the metropolitan territory falls under the procedure to be followed regarding the transfe. of competence to the European Community.

31. However, after thorough examination, the Legal Counsel, taking into account special circumstances, decided to accommodate the United Kingdom approach, provided that the United Kingdom made a formal declaration explaining the legal constraints on ratification in respect of its metropolitan territory flowing from the United Kingdom's membership in the European Community and stating its intention to ratify the Agreement simultaneously with the European Community and the other member States.

32. Such additional declaration was provided by the United Kingdom on 10 December 2001. In the declaration the United Kingdom noted its keen support of the 1995 Fish Stocks Agreement. It also stated that legislation of the European Communities (Council decision 10176/97 of 8 June 1998) bound the United Kingdom as a matter of European Community (EC) law to deposit its instrument of ratification in relation to the metropolitan territory simultaneously with the Community and the other member States. The

declaration explained that the constraints imposed by the Council decision only applied in respect of the United Kingdom metropolitan territory and those Overseas Territories to which the EC treaties applied. It further noted the strong wish of the United Kingdom to implement the Agreement in respect of those Overseas Territories to which the EC treaty did not apply so as to enable those territories to enjoy the rights and obligations accruing under the Agreement.

C. Meeting of States Parties

33. Eleven Meetings of States Parties to UNCLOS have been held so far, in accordance with article 319, paragraph 2 (e), of UNCLOS.[4] The eleventh Meeting of States Parties was held in New York from 14 to 18 May 2001. For details of the work of the Meeting, see the most recent report (A/56/58/Add.1, paras. 15-23). The Meeting, inter alia, dealt with the following issues: the budget of the International Tribunal for the Law of the Sea for the year 2002, the Financial Regulations of the Tribunal, matters related to the continental shelf, and matters related to article 319 of the Convention. The Meeting also elected Xu Guangjian (China) to serve the remainder of the term of Judge Lihai Zhao, who passed away on 10 October 2000. One of the most significant decisions of the eleventh Meeting has a positive bearing on the implementation of certain aspects of the Convention by a number of countries, especially developing countries: The Meeting decided that for a State for which the Convention entered into force before 13 May 1999, the date of the commencement of the 10-year time period for making a submission to the Commission on the Limits of the Continental Shelf with regard to the outer limits of its continental shelf beyond 200 nautical miles would be 13 May 1999.

34. In another important decision, the Meeting provided for an open-ended working group to be established as a matter of priority during the Meetings of States Parties at which financial and budgetary matters of the Tribunal will be discussed. The open-ended working group, to be chaired by the President of the Meeting, will review the proposed budget of the Tribunal and make recommendations to the Meeting. Decisions on budgetary and financial matters taken by the Meeting shall be based on those recommendations.

35. A significant development was the consideration by the Meeting of matters related to article 319 of UNCLOS, and in that connection, issues relating to the implementation of the Convention. Many delegations expressed their support for an expanded role for the Meeting of States Parties beyond budgetary and administrative matters. In their view, the Meeting had the competence to discuss issues of implementation of the Convention bearing in mind the need to avoid duplication of the work in other forums. Other delegations stated that the interpretation of article 319 of the Convention did not support an expanded role for the Meeting of States Parties. The mandate of the Secretary-General in article 319, paragraph 2 (e), to convene necessary meetings of States Parties was qualified in two respects: first, it was limited to meetings that were "necessary"; and secondly, the mandate was linked to the provisions of the Convention, which clearly specified the matters to be considered by Meetings of States Parties. In the light of the various views expressed, the eleventh Meeting of States Parties decided to retain the current agenda item entitled "Matters related to article 319 of the United Nations Convention on the Law of the Sea" for its next Meeting.

36. The twelfth Meeting of States Parties will be held from 16 to 26 April 2002 at United Nations Headquarters (see resolution 56/12, para. 9).

III. Maritime space

A. Recent developments

37. Among the most important recent developments regarding maritime space and maritime delimitation were the preparations for the convening of a Caribbean Conference on Maritime Delimitation. The initiative to convene the conference was announced at the twenty-second Summit Meeting of the Caribbean Community (CARICOM) held in Nassau, Bahamas, in July 2001, by the President of Mexico, Vicente Fox. The goal of the conference is to offer, within the context of regional mechanisms of cooperation and in fostering confidence-building and preventive diplomacy, a diplomatic forum to encourage and facilitate negotiations of maritime boundary delimitation in the region.

38. Many benefits are expected to be derived from a clear definition of maritime boundaries in the region, in particular a number of economic benefits, such as those

related to oil and gas exploitation and to the exercise of jurisdiction over fisheries zones. It is also apparent that unresolved boundary issues and the consequent lack of cooperation contribute to the aggravation of a number of ocean-related problems, such as maritime pollution, unsustainable and unregulated fisheries, use of maritime spaces for narcotic drug trafficking, and the transport of dangerous or harmful substances in violation of applicable international rules and standards.

39. The Preparatory Committee for the Conference met in Mexico City in January 2002. Among other things, the participating States approved the draft Rules of the Conference, including the definition of its mandate. The Division for Ocean Affairs and the Law of the Sea was invited as observer. The Division made a substantial presentation on the issues related to maritime delimitation and described the technical assistance it can provide. The first session of the Conference is scheduled to be held in Mexico City from 6 to 9 May 2002.

40. The draft Rules of the Conference establish, inter alia, a Registry of the Delimitation Negotiations, for informative purposes. Participating States with opposite or adjacent coasts may mutually agree to enter into the Registry the delimitation of one or more of their maritime zones, the negotiation of which they wish to undertake or continue within the context of the Conference. The draft Rules further foresee that the Division will be invited, at the first session of the Conference, to give a presentation on the technical assistance it can offer, acting within the mandate given to it by the relevant United Nations resolutions. Such assistance may be requested by a common accord of parties involved in corresponding negotiations and shall be rendered by the Division on an impartial basis. Furthermore, the draft Rules contain provisions concerning the establishment of an assistance fund, to be managed by the Division in accordance with the terms of reference adopted on the basis of the Financial Regulations and Rules of the United Nations.

41. Regarding the mandate of the conference, the States participating in the Preparatory Committee agreed that the Conference should facilitate, mainly through technical assistance, the voluntary undertaking of maritime delimitation negotiations between the Caribbean coastal States, based on the principle that the negotiations shall take place at the time and according to terms agreed freely by the parties, and without any external intervention.

42. During the period under review, several other developments have been brought to the attention of the Division of Ocean Affairs and the Law of the Sea. In the African region, negotiations between Angola and Namibia, which started in 1993 with a view to analysing the common border, resulted in the conclusion of a treaty for the delimitation of the maritime border between the two States. Also, Algeria and Tunisia signed a protocol agreement on cooperation between the two countries. The agreement concerns, inter alia, arrangements for the demarcation of Algerian-Tunisian maritime borders.

43. In the Latin American and Caribbean region, Honduras and the United Kingdom concluded an agreement on the delimitation of the maritime zones between Honduras and the Cayman Islands.

44. Two cases are pending before the International Court of Justice, namely, *Maritime Delimitation between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, and proceedings against Colombia with regard to "legal issues subsisting" between the two States "concerning title to territory and maritime delimitation" in the western Caribbean, initiated by Nicaragua (also see paras. 564-567). In another development, Honduras requested the Security Council, in January 2002, to make recommendations to ensure the execution of the judgement of the International Court of Justice of 11 September 1992 in the land, island and maritime frontier dispute between Honduras and El Salvador.

45. The Government of Saint Kitts and Nevis protested the status granted to the Venezuelan territory known as "Isla Aves" in certain maritime boundary treaties concluded by Venezuela. Those treaties appeared to grant "Isla Aves" full status of territorial sea, exclusive economic zone or continental shelf. Saint Kitts and Nevis pointed out that, according to customary international law and as reflected in UNCLOS, rocks which cannot sustain human habitation or an economic life of their own shall have no exclusive economic zone or continental shelf. It also pointed out that the artificial installation and structure erected adjacent to "Isla Aves" should not possess the status of an island and shall have no territorial sea of its own and its presence should not affect the delimitation of the territorial sea, the exclusive

economic zone or the continental shelf. It is recalled that similar protests were made in 1997 by Antigua and Barbuda, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines (see A/52/487, para. 74).

46. Guyana addressed protests to Trinidad and Tobago and Venezuela in connection with the Treaty on Delimitation of Marine and Submarine Areas between Trinidad and Tobago and Venezuela signed at Caracas on 18 April 1990, which entered into force on 23 July 1991. Referring to a review of its provisional maritime boundaries and of its potential claims to its extended continental shelf, Guyana stated that the Treaty purported to give to its parties rights over certain maritime areas which are a portion of Guyana's maritime space.

47. Among other unresolved maritime boundary delimitations in the Latin American and Caribbean region were delimitations between Guyana and Suriname, Colombia and Venezuela, Trinidad and Tobago and Barbados, and Guatemala and Belize. It appears, however, that at least in some of these cases, significant efforts have been made and progress has been achieved with a view to finding negotiated, mutually agreeable solutions. It also appears that in the region other negotiations and processes relating to maritime boundary delimitations may have been initiated or are under way. The Caribbean Conference on Maritime Delimitation is also expected to facilitate the search for agreeable solutions (see paras. 37-41).

48. In the European region, reports were received, inter alia, on the attempts to reach an agreement on the maritime boundary and continental shelf delimitation between Romania and Ukraine in the Black Sea.

49. No major developments have recently been reported in the Asian region, where the unresolved maritime delimitations are in a large number of cases tied to complex issues of sovereignty over islands.

50. As referred to in the most recent report (A/56/58/Add.1, para. 24), the Division is in the process of reviewing and enhancing its collection of information regarding legislative measures undertaken by States parties in implementing UNCLOS. In this context, the Division has circulated a questionnaire to all signatories of and States parties to the Convention, requesting input and seeking any other relevant information concerning steps taken by States parties to harmonize their national legislation with UNCLOS. The questionnaire has also been placed on the Division's web site (www.un.org/Depts/los). It is noted that the web site already contains a set of national legislation acts and references to maritime boundary delimitation treaties (in English) organized by regions and by States. The Division intends to prepare an analysis of the information received and share the results with States as soon as practicable as part of an overall assessment of the implementation of UNCLOS 20 years after its adoption.

B. National claims to maritime zones

51. Twenty years after the adoption of the Convention, there is almost a universal acceptance of maritime zones as well as of their maximum extent and of the respective regime for them as established by UNCLOS. The statistics about national claims are presented in the table entitled "Summary of national claims to maritime zones" (see A/56/58, annex II); they have remained mostly unchanged during the reporting period (see also A/56/58, paras. 49-51). Despite extensive research, however, the table may not always reflect the latest developments, owing to the lack of regular updates from Governments.

52. Regarding claims with respect to the continental shelf, it should again be noted that their status may appear in certain cases rather ambiguous, especially where the claims and legislation were initially based on the Convention on the Continental Shelf, adopted at Geneva on 29 April 1958, and where the State concerned subsequently became a State party to UNCLOS. States parties to UNCLOS concerned may wish to continue reviewing their legislation on the continental shelf with a view to bringing it into harmony with the provisions of current international law.

C. Continental shelf beyond 200 nautical miles and the work of the Commission on the Limits of the Continental Shelf

53. *Work of the Commission on the Limits of the Continental Shelf.* The Commission has held nine sessions since it was established in June 1997.[5] The tenth session of the Commission will open on 25 March 2002. It will be of three weeks' duration in order to allow time for the Commission to examine the

submission of the Russian Federation, which was made on 20 December 2001 (see para. 55).

54. In view of the forthcoming second election of 21 members of the Commission at the twelfth Meeting of States Parties, to be held from 16 to 26 April 2002, the Commission proposed that the eleventh session of the Commission in its new composition should be held from 24 to 28 June 2002. The term of office of the current members of the Commission expires on 15 June 2002.

55. *Submission to the Commission by the Russian Federation.* On 20 December 2001, the Russian Federation made a submission to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8, of the Convention. The submission contains the information on the proposed outer limits of the continental shelf of the Russian Federation beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. It is noted that the Convention entered into force for the Russian Federation on 11 April 1997.

56. In accordance with rule 49 of the Rules of Procedure of the Commission (CLCS/3/Rev.4 and Corr.1), the Secretary-General circulated on that date a note verbale to all States Members of the United Nations, including States parties to the Convention, to make public the proposed outer limits of the continental shelf pursuant to the submission. The list of geographical coordinates of points proposed for the outer limits of the continental shelf and illustrative maps included in the submission, showing the proposed limits, were attached to the communication.

57. The note verbale informed the States Members that the consideration of the submission made by the Russian Federation shall be included in the agenda of the tenth session of the Commission, to be held in New York from 25 March to 12 April 2002. Upon completion of the consideration of the submission, the Commission shall make recommendations in accordance with article 76, paragraph 8, of the Convention. Similar notification was also communicated to the members of the Commission.

58. *Reaction of States to the Russian submission.* In response to the note verbale of the Secretary-General, communications were received from Canada, Denmark, Japan, Norway and the United States of America. The contents of these communications are being circulated to all Member States and will be communicated to the Commission at its tenth session.

59. *Second election of the members of the Commission.* The second election of the 21 members of the Commission will be held at the twelfth Meeting of States Parties at United Nations Headquarters (16-26 April 2002). The nomination of candidates was opened on 11 December 2001 for any State party. States in the process of becoming a party to the Convention may also nominate candidates. The closing date for nominations was 11 March 2002.

60. The members of the Commission serve in their personal capacity, and are elected by the States parties to the Convention from among their nationals in accordance with article 2, paragraph 1, of annex II to the Convention, having due regard to the need to ensure equitable geographical representation.

61. In addition to the election of the members of the Commission, the twelfth Meeting of States Parties will also consider the possibility of granting observer status to the Commission. The possibility of observer status for the Commission, one of the three bodies established under the Convention and the only one of the three to which that status has not yet been accorded, was suggested at the last session by the President of the Eleventh Meeting of States Parties.

62. *Trust Fund for preparation of submissions to the Commission.* The Trust Fund for the purpose of facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf for developing States, in particular the least developed countries and small island developing States, and compliance with article 76 of the United Nations Convention on the Law of the Sea, was established by the General Assembly in its resolution 55/7 of 30 October 2000 upon the recommendation of the tenth Meeting of States Parties. The terms of reference of the Trust Fund are contained in annex II to the resolution.

63. Its purpose is: (a) to provide assistance to States parties to meet their obligations under article 76 of the Convention, and (b) to provide training to countries, in particular, the least developed among them and small island developing States, for preparing submissions to the Commission with respect to the outer limits of the continental shelf beyond 200 nautical miles, as appropriate (SPLOS/59). The fund currently contains over US$ 1 million, from two contributions of Norway.

64. One of the uses of the fund may be to provide both training to the appropriate technical and administrative staff of the coastal State making a submission to enable them to perform initial desktop studies and project planning, and to prepare the final submission documents when the necessary data have been acquired. The fund also may be used to provide for advisory assistance or consultancies, if needed. The data acquisition campaigns themselves, however, are not the object of the fund.

65. Submissions to the Commission must be prepared in conformity with the provisions of article 76 and Annex II to the Convention (and for some States, Annex II of the Final Act), on the basis of the Scientific and Technical Guidelines prepared by the Commission. The training provided should take these requirements into account and should aim at enabling the submitting State's personnel to prepare most of the required documents themselves. The preparation of the submission may entail other costs that may also be met through the fund (e.g. software and hardware equipment, technical assistance, etc.).

66. In order to qualify for monies from the fund, developing States should address their applications to the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations. In applications for financial assistance to the fund, the requirements of section 4 of annex II to resolution 55/7 must be satisfied. Section 4 states both the purposes for which financial assistance may be sought and the detailed information to be provided by the State for each purpose.

67. All applications will be considered by the Division with the assistance of an independent panel of experts, who will examine them on the basis of information given according to section 4 of the terms of reference and will recommend the amount of financial assistance to be given. The Division has already sent invitations to the permanent missions of Brazil, Japan, Norway, Papua New Guinea, Slovakia and South Africa to nominate their representatives to the panel of experts. Positive responses have been received from all of them.

68. The Secretary-General will provide financial assistance from the fund on the basis of the evaluation and recommendations of the Division. The decision by the Secretary-General will be based solely on the financial needs of the requesting developing State and the availability of funds, with priority given to least developed countries and small island developing States. Payments will be made against receipts evidencing actual expenditures for approved costs.

69. This Trust Fund is not intended to be used to finance activities conducted by an international organization; however, reimbursements may be requested from the fund for airfare and per diem (presumably based on United Nations rates) for the participants from developing countries in appropriate training courses.

70. The Division has already received queries regarding the use of the Trust Fund monies from governmental and non-governmental institutions of Federated States of Micronesia, Fiji, Gambia, Guyana, India, Indonesia, Mozambique, Papua New Guinea and Solomon Islands. Formal applications are expected soon and are scheduled to be considered by the panel of experts in March 2002.

71. *Training courses and symposia (2001-2002).* In its resolution 55/7, the General Assembly encouraged coastal States and relevant international organizations and institutions to consider developing and making available training courses on the delineation of the outer limits of the continental shelf beyond 200 nautical miles and for the preparation of submissions to be presented to the Commission.

72. Although it is not part of its mandate to conduct or organize training, the Commission decided at its eighth session in September 2000 to design an outline for a five-day training course for the delineation of the outer limits of the continental shelf beyond 200 nautical miles and for the preparation of a submission of a coastal State to the Commission (CLCS/24). The Commission undertook this work with a view to facilitating the preparation of submissions, especially by developing States, in accordance with the letter and spirit of the Convention, as well as with the guidelines of the Commission. It was also felt that the use of the outline would ensure a uniform and consistent practice among the courses.

73. Several regional training courses were conducted in 2001 and are scheduled for 2002 using this outline as the basis for the core curriculum. The practice of offering regional courses appears to be cost-effective for developing countries in the same region and allows the courses to take into account the wide variation in

types of continental margins in different areas of the oceans.

74. The Government of Brazil hosted a five-day training course at Rio de Janeiro from 3 to 9 March 2002 on the delineation of the outer limits of the continental shelf beyond 200 nautical miles and for the preparation of submissions by interested coastal States. The course will be structured in accordance with the training modules and criteria developed by the Commission on the Limits of the Continental Shelf. The Government of Brazil, in compliance with the Convention, began in 1987 an intensive programme of acquisition, processing and interpretation of marine geophysical data with a view to defining the outer limits of its continental shelf. The training course is being offered as a result of the experience gained by Brazil in preparing its submission.

75. The second five-day training course is being organized jointly by the Southampton Oceanography Centre and the Hydrographic Office of the United Kingdom from 26 to 30 March 2001 in Southampton. The course will emphasize both the delineation of the outer limits of the extended continental shelf and the practical aspects of completing a submission to the Commission, and represents a modification of the core outline for a five-day training course, designed by the Commission. A similar course was given in March 2001 (see A/56/58, para. 81). Information about the course is available on the Internet at www.soc.soton.ac.uk/COURSES/UNCLOS/index.html.

76. Sixty-five scientists and lawyers from 27 countries took part in the Conference on Accuracies and Uncertainties in Maritime Boundaries and Outer Limits, organized by the Advisory Board on Geodetic, Hydrographic and Marine Geo-Scientific Aspects of the Law of the Sea (ABLOS) (regarding the mandate and composition of ABLOS, see A/56/58, para. 75, endnote 11). The conference was convened at the International Hydrographic Bureau in Monaco on 18 and 19 October 2001. The conference proceedings, containing the 23 papers presented, are available at the ABLOS web site: http://www.gmat.unsw.edu.au/ablos/ablos01_papers.htm.

77. This was the second of the biannual international conferences sponsored by ABLOS. The first conference was hosted by the International Hydrographic Bureau in September 1999 (see A/56/58, paras. 65-68). The third conference is planned to be convened in 2003.

D. Deposit of charts and/or lists of geographical coordinates and compliance with the obligation of due publicity

78. Coastal States, under article 16, paragraph 2, article 47, paragraph 9, article 75, paragraph 2, and article 84, paragraph 2, of UNCLOS, are required to deposit with the Secretary-General of the United Nations charts showing straight baselines and archipelagic baselines as well as the outer limits of the territorial sea, the exclusive economic zone and the continental shelf; alternatively, lists of geographical coordinates of points, specifying the geodetic datum, may be substituted. Coastal States are also required to give due publicity to all these charts and lists of geographical coordinates. Furthermore, under article 76, paragraph 9, coastal States are required to deposit with the Secretary-General charts and relevant information permanently describing the outer limits of the continental shelf extending beyond 200 nautical miles. In this case, due publicity is to be given by the Secretary-General. Together with the submission of their charts and/or lists of geographical coordinates, States parties are required to provide appropriate information regarding original geodetic datum.

79. In this connection, it should be noted that the deposit of charts or of lists of geographical coordinates of points with the Secretary-General of the United Nations is an international act by a State party to UNCLOS in order to conform with the deposit obligations referred to above, after the entry into force of UNCLOS. This act is addressed to the Secretary-General in the form of a note verbale or a letter by the Permanent Representative to the United Nations or other person considered as representing the State party. The mere existence or adoption of legislation or the conclusion of a maritime boundary delimitation treaty registered with the Secretariat, even if they contain charts or lists of coordinates, cannot be interpreted as an act of deposit with the Secretary-General under the Convention.

80. In its resolution 56/12, the General Assembly once again encouraged States parties to the Convention to deposit with the Secretary-General such charts and

lists of geographical coordinates. So far, only 24 States have fully or partially complied with their deposit obligations (see A/56/58, annex III). No new deposits have been received since the issuance of the most recent report (A/56/58/Add.1). Descriptions of the deposits are published by the Division periodically in its Law of the Sea Information Circular.

E. Access to and from the sea by landlocked developing countries and freedom of transit

81. In its resolution 56/180 of 21 December 2001, entitled "Specific actions related to the particular needs and problems of landlocked developing countries", the General Assembly recognized that the lack of territorial access to the sea, aggravated by remoteness and isolation from world markets, and prohibitive transit costs and risks impose serious constraints on the overall socio-economic development efforts of the landlocked developing countries. In that context, the Assembly reaffirmed the right of access of landlocked countries to and from the sea and freedom of transit through the territory of transit countries by all means of transport, as set forth in article 125 of UNCLOS, and called upon the landlocked developing countries and their transit neighbours to implement measures to strengthen further their cooperative and collaborative efforts to deal with transit transport issues, including bilateral and, as appropriate, subregional cooperation, inter alia, by improving the physical infrastructure and non-physical aspects of transit transport systems, strengthening and concluding, where appropriate, bilateral and subregional agreements to govern transit transport operations, developing joint ventures in the area of transit transport, and strengthening institutions and human resources dealing with transit transport.

82. The General Assembly also requested the Secretary-General to convene in 2003 an International Ministerial Meeting of Landlocked and Transit Developing Countries and Donor Countries and International Financial and Development Institutions on Transit Transport Cooperation to review the current situation of transit transport systems, including the implementation of the Global Framework for Transit Transport Cooperation of 1995, and to formulate, inter alia, appropriate policy measures and action-oriented programmes aimed at developing efficient transit transport systems.

83. A recent example of subregional cooperation is the "North-South" transport corridor agreement signed by the Russian Federation, the Islamic Republic of Iran, India and Oman at St. Petersburg on 12 September 2000. The agreement should provide tax-free access to the existing transportation infrastructure, inter alia, to the countries of the Caspian region; the estimated cost of transportation via this corridor is reported to be 15 per cent to 20 per cent less than via the Suez Canal, with a reduction of the transportation period by up to 20 days. It appears that a number of landlocked countries of Central Asia have expressed their interest in participating.

IV. Shipping and navigation

84. An unstable global economy and recent security concerns have exerted tremendous pressure on an industry which already offers a fairly low return on investment generally. Some industry sectors are already showing an oversupply of tonnage, with a consequent downward pressure on freight rates. Since so many shipping companies throughout the world are operating on the margins of financial viability, there is a concern that declining economic conditions will eventually lead to deterioration in quality and a decline in standards.[6]

85. *Ship recycling/dismantling.* An ageing world fleet and higher costs associated with the introduction of stricter requirements regarding ship construction may motivate many owners to send their ships for recycling primarily for their steel content. The projected increase in the number of ships being sent for recycling, and the poor health and environmental conditions at some of the major scrapping sites has focused public attention on an industry which has traditionally been self-regulatory.

86. The Commission on Sustainable Development in its decision 7/1 (para. 35 (h)) had noted that scrapping of ships represents an issue of concern with regard to the pollution of the environment and therefore called upon the IMO to look into the issue and encouraged States to ensure that responsible care is applied with regard to the disposal of decommissioned ships. IMO in its contribution to the present report stated that the IMO Marine Environment Protection Committee (MEPC) had an extensive exchange of views on how recycling of ships should be handled by IMO in cooperation with relevant organizations, including the International Labour Organization (ILO) and the

United Nations Environment Programme (UNEP)/Basel Convention and agreed that IMO had a role to play. It established a correspondence group to undertake further work on identifying the role of IMO and to recommend possible courses of action, including the development of an IMO Assembly resolution on ship recycling, for a more in-depth discussion at the forty-seventh session of MEPC in March 2002.[7]

87. The shipping industry has recently completed a Code of Practice on Ship Recycling, which establishes a series of best practices for shipping companies to adopt in respect of ships being sold for recycling.[8] Technical guidelines for the environmentally sound management of the dismantling of ships are under development within the framework of the Basel Convention in cooperation with ILO and IMO. The Technical Working Group of the Basel Convention, which is charged with the task of developing the guidelines, plans to finalize them for adoption at the sixth meeting of the Conference of the Parties to the Basel Convention in December 2002.[9]

88. There are a number of conditions which must be met before a vessel can be considered safe for navigation. Safe and efficient navigation also depends on safe, secure and crime-free navigational routes (see also para. 111). Effective implementation and enforcement of the body of law that governs all aspects of navigation is of fundamental importance not only for the safety of navigation, but also for the protection and preservation of the marine environment (see also paras. 123-127). In the 20 years since the adoption of UNCLOS, this body of law has become increasingly substantial and broad in scope, thus posing a tremendous challenge to those responsible for its implementation.

A. Safety of ships

89. UNCLOS balances the rights of the flag State to exercise exclusive jurisdiction over ships flying its flag and to enjoy rights of navigation with the duty to effectively exercise jurisdiction and control in administrative, technical and social matters over ships flying its flag. The flag State, in its exercise of jurisdiction, must take such measures as are necessary to ensure safety at sea with regard, inter alia, to the construction, equipment and seaworthiness of ships and the manning of ships, labour conditions and the training of crews (see article 94, paragraphs 3, 4 and 5). Pursuant to the provisions of articles 194 (3) (b) and 217 (2), flag State jurisdiction is to be exercised not only for the purposes of safety, but also to ensure the protection and preservation of the marine environment.

Ship construction, equipment and seaworthiness

90. *Ship construction and equipment.* The generally accepted international regulations, procedures and practices governing ship construction, equipment and seaworthiness which States have developed and are required by article 94 and other provisions of UNCLOS to observe are basically those contained in SOLAS, the International Convention on Load Lines (LL Convention), MARPOL 73/78 (for oil tanker design) and in numerous IMO recommendations, guidelines and codes. Construction and equipment requirements for the safety of fishing vessels are contained in the 1977 Torremolinos Convention as amended by the 1993 Protocol.

91. Since the adoption of UNCLOS in 1982 and since UNCED in 1992 (Agenda 21, chap. 17, para. 17.30 (a) (viii)), IMO has adopted a range of measures aimed at improving ship construction. The most significant include: safety standards for roll-on/roll-off passenger ferries (adopted in 1988 and 1995); safety standards for oil tankers (double hulls) (adopted in 1992 and 2001); safety standards for bulk carriers (adopted in 1997); the harmonized system of survey and certification (adopted in 1988); and the International Safety Management Code (adopted in 1994).

92. A major advance in maritime communications took place when the Global Maritime Distress and Safety System (GMDSS), a worldwide network of automated emergency communications for ships at sea, was adopted in 1988. Furthermore, new requirements for the installation of navigational systems and equipment, such as the Global Navigation Satellite System (GNSS), the Electronic Chart Display and Information System (ECDIS), the Automatic Identification System (AIS) and the Voyage Data Recorder (VDR), will apply as of 1 July 2002, when the revised SOLAS Chapter V, which was adopted in 2000, enters into force. IMO reported that the IMO Assembly, at its 22nd session in November 2001, in preparation for the entry into force of the new SOLAS Chapter V requirements, adopted guidelines for

recording events related to navigation (resolution A.916(22)) and guidelines for the operational use of shipborne automatic identification systems (resolution A.917(22)).

93. *Safety of fishing vessels.* In the 2001 report on oceans and the law of the sea (A/56/58, paras. 126-131), attention was drawn to the high number of fatalities among fishers at sea: more than 70 per day. Reasons for the occurrence of fatal accidents identified by FAO[10] include the lack of entry into force of the 1993 Protocol to the Torremolinos Convention, which superseded the 1977 Torremolinos Convention; the lack of national regulations or, where they exist, their enforcement; lack of experience with offshore fishing operations and lack of knowledge about essential issues such as navigation, weather forecasting, communications and the vital culture of safety at sea. FAO has also drawn attention to the fact that more than 97 per cent of the 15 million fishers employed in marine capture fisheries worldwide are working on vessels which are less than 24 metres in length and thus largely beyond the scope of international conventions and guidelines. The 1993 Protocol to the Torremolinos Convention only applies to fishing vessels more than 24 metres in length.

94. The IMO Assembly at its 22nd session (November 2001), in its resolution A.925(22), urged Governments to consider becoming a party to both the 1993 Protocol to the Torremolinos Convention and the 1995 International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel (STCW-F Convention) and invited Governments experiencing difficulties in the process of becoming parties to inform IMO of the circumstances thereof, so that consideration might be given to appropriate action being taken in that respect, including the provision of necessary technical assistance. The Maritime Safety Committee (MSC) was requested to review the situation concerning entry into force of the said instruments and, in the light of such review, to take action as it deemed appropriate.

95. *Small fishing vessels and small ships.* The safety of small fishing vessels, i.e., those less than 24 metres in length, and of small ships, i.e., ships too small to be covered by SOLAS and the LL Convention, is also receiving increasing attention at the regional level. The South Pacific, for example, has adopted several safety measures, including regulations covering the Safety of Small Boats and Small Fishing Vessels (see annex II to the present report). Common safety rules for small ships were adopted in 1996 by Bangladesh, China, Indonesia, the Islamic Republic of Iran, Malaysia, the Philippines, the Republic of Korea, Singapore and Thailand. In the Mediterranean region, work is continuing on the development of an instrument to regulate the navigation of pleasure craft.

Training of crew and labour conditions

96. UNCLOS, article 94, requires flag States to take measures to ensure safety at sea with regard to the manning of ships, labour conditions and the training of crews, taking into account applicable international instruments. The measures must conform to generally accepted international regulations, procedures and practices and the flag State must take any steps which may be necessary to secure their observance.

97. *Training of crew.* The international regulations, procedures and practices applicable to the training of crews are set out in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), as amended in 1995. A significant feature of this Convention is that it gives IMO some responsibility for ensuring that its requirements are met. By 1 February 2002, all seafarers must have been trained in compliance with the 1995 amendments to STCW and carry certificates to that effect. In spite of the 1 February deadline, it appears that many seafarers have not yet been able to obtain the necessary certification required by STCW and parties to the Convention have had difficulties in concluding the arrangements required to process reciprocal recognition endorsements.[11]

98. *Labour conditions.* The enquiry into ship safety by the International Commission on Shipping, published in March 2001, concluded that "for thousands of today's international seafarers, life at sea is modern slavery and their workplace is a slave ship". In its report the Commission makes a number of recommendations, mainly on crew issues and port State control activities, which are directed for action by flag States, coastal States, shippers' councils, classification societies, the United States Government, the European Commission, IMO, ILO, FAO, the International Group of P&I Clubs, international shipping organizations and owners.[12]

99. The international instruments governing labour conditions referred to in article 94 of UNCLOS consist

of the body of maritime labour standards adopted by ILO, better known as the International Seafarers Code, which comprises numerous Conventions and Recommendations, of which the Merchant Shipping (Minimum Standards) Convention, 1976 (No. 147) is the most far-reaching and applies to the majority of the world merchant fleet.

100. ILO reported that at its 29th session, in January 2001, the ILO Joint Maritime Commission agreed to consolidate the existing ILO maritime instruments into a single instrument. It also agreed that the new instrument should be easily ratifiable by a large majority of ILO member States; be clear enough to be rapidly implemented into national legislation; enable port State control officers to check its effective application on board vessels; be easily understandable by seafarers and shipowners; and be rapidly amendable, to take account of the accelerated pace of change in the industry. At its 280th session, in March 2001, the Governing Body of ILO accepted these recommendations and decided to convene a series of preparatory meetings with a view to the adoption of a new Convention in 2005.

101. The first such preparatory meeting, the High-level Tripartite Working Group on Maritime Labour Standards, held in December 2001, endorsed the proposal to consolidate the maritime labour standards and exchanged preliminary ideas on various points to be taken into account in elaborating the new instrument. A tripartite subgroup was established, which will meet in June 2002. The next meeting of the Working Group will be held in October 2002.[13]

102. *Provision of financial security for seafarers' claims.* The IMO Assembly at its 22nd session, in November 2001, adopted two resolutions devoted solely to seafarers: resolution A.930(22), adopting "Guidelines on provision of financial security in case of abandonment of seafarers", and resolution A.931(22), adopting "Guidelines on shipowners' responsibilities in respect of contractual claims for personal injury to or death of seafarers". Both resolutions contain a human rights clause, and one contains a model release form. The guidelines were approved by the ILO Governing Body at its 282nd session, in November 2001, and took effect on 1 January 2002. Their implementation is to be monitored by the Joint IMO/ILO Ad Hoc Expert Working Group on Liability and Compensation regarding Claims for Death, Personal Injury and Abandonment of Seafarers, which will also assess the need for further action.[14]

B. Transport of cargo

103. The volume of goods transported by sea has increased significantly over past 20 years since the adoption of UNCLOS. It has been estimated, according to IMO criteria, that more than 50 per cent of packaged goods and bulk cargo transported by sea today can be regarded as dangerous, hazardous or harmful to the environment.

104. UNCLOS does not specifically address the carriage of dangerous goods by ships, except in articles 22 (2) and 23.

105. SOLAS Chapter VI deals with the carriage of all types of cargo except liquids and gases in bulk. The carriage by sea of dangerous and hazardous substances is regulated in SOLAS Chapter VII, MARPOL 73/78, annexes II and III (see paras. 381-382), and in several IMO Codes.[15]

106. *Radioactive material.* The 1979 Convention on the Physical Protection of Nuclear Material requires all Contracting Parties to ensure the protection of nuclear material in their territory or on board their ships while in international nuclear transport. Carriage requirements for highly radioactive cargo, for example, design, fabrication, maintenance of packaging, handling, storage and receipt, which are applicable to all modes of transport, are contained in the International Atomic Energy Agency (IAEA) Regulations for the Safe Transport of Radioactive Material. The regulations were most recently revised in 1996[16] and became mandatory on 1 January 2002.

107. The development of the INF Code, as also encouraged by UNCED in Agenda 21, chapter 17, paragraph 17.30 (a) (ix), was completed in 1993. The Code regulates the construction, equipment and operation of ships carrying irradiated nuclear fuel. It was amended in 1997 to require shipboard emergency plans and notification in the event of an accident involving INF materials. The Code was made mandatory in 1999 by virtue of the adoption of amendments to SOLAS Chapter VII, which entered into force on 1 January 2001.

108. The shipments of mixed oxide fuel (MOX) between the United Kingdom and France and Japan continue to be of great concern to the coastal States

along the routes currently being used for those shipments.[17] The Commission on Sustainable Development, in paragraph 21 (h) of its decision 9/1, on "Energy for sustainable development", adopted in April 2001, and the IAEA General Conference, in its resolution GC(45)/RES/10 adopted at its 45th session, in September 2001, called for further efforts, at the international, regional and bilateral levels, to examine and further improve measures and international regulations relevant to the international maritime transport of radioactive material and spent fuel, consistent with international law, and stressed the importance of having effective liability measures in place to ensure against harm to human health and the environment as well as actual economic loss due to an accident. The IAEA General Conference urged member States shipping radioactive material and spent fuel to provide, as appropriate, assurances to potentially affected States that their national regulations were in accord with the IAEA Transport Regulations. It welcomed the practice of some shipping States and operators of undertaking timely consultations with relevant coastal States in advance of shipments and invited others to do so.

109. IAEA is planning to convene a Conference on the Safety of Transport of Radioactive Material early in 2003. The Conference will establish a platform for discussing all aspects of safety in the international transport of radioactive material.

C. Safety of navigation

110. Ships are required by UNCLOS to observe the applicable rights of passage in the various maritime zones, as well as the measures which coastal States may take in regulating maritime traffic. Detailed rules governing safety of navigation and the prevention of collisions at sea, with which compliance is required by UNCLOS, have been developed by IMO. SOLAS Chapter V and the International Regulations for Preventing Collisions at Sea (COLREG) constitute the main instruments in that regard.

111. *Promoting navigational safety by adequate charting*. UNCLOS requires States to give appropriate publicity to any danger to navigation of which they have knowledge within their territorial sea (article 24), in straits used for international navigation (article 44), or in archipelagic sea lanes (article 54). The International Hydrographic Organization (IHO) and IMO have in the past pointed to the need for coastal States to discharge their responsibilities with respect to surveying and charting waters under their jurisdiction with a view to improving the safety of navigation and the protection of the marine environment. The General Assembly, in its resolution 56/12 on "Oceans and the law of the sea", invited IHO, in cooperation with other relevant international organizations and interested Member States, to provide the necessary assistance to States, in particular to developing countries, in order to enhance hydrographic capability to ensure, in particular, the safety of navigation and the protection of the marine environment.

112. PERSGA in its contribution to the report (via UNEP) provided information on its Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden. With support from the World Bank, a full hydrographic analysis has been undertaken covering 750 square nautical miles in the Red Sea, and the correct location of rocks and other hazards have been identified for the first time and several areas which were previously thought to be shallow areas have been proved not to be (for details of the PERSGA activities in this regard, see paras. 479-480).

113. IMO is currently executing a GEF/World Bank project in the East Asian Sea aimed at developing a regional network of electronic navigational charts to enhance navigational safety and environmental management. The first phase of the project has been executed in the Straits of Malacca and Singapore.[18]

D. Assistance at sea

Rescue of persons in distress

114. The duty to render assistance to any person found in distress at sea is clearly established as a principle of maritime law and enshrined in article 98 of UNCLOS, SOLAS, article 10 of the 1989 Salvage Convention, and in the 1979 International Convention on Maritime Search and Rescue. Article 98 of UNCLOS requires both flag States and coastal States to act in order to enforce the duty of assistance: the flag State, by requiring vessels flying its flag to assist any person in danger at sea; and the coastal State, by creating an adequate and effective search and rescue service.

115. The 1979 International Convention on Maritime Search and Rescue (SAR Convention), as amended in 1998,[19] defines the term rescue as "an operation to

retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety". The Convention does not address what constitutes a place of safety.

116. After the incident involving the vessel *Tampa* in August 2001, the IMO Assembly, in its resolution A.920(22), entitled "Review of safety measures and procedures for the treatment of persons rescued at sea", requested the IMO committees to review, on a priority basis, the international conventions referred to in the resolution (i.e., those listed in para. 114 above) and other IMO instruments under their scope, for the purpose of identifying any existing gaps, inconsistencies, ambiguities, vagueness or other inadequacies and, in the light of such review, to take action as appropriate so that: (a) survivors in distress incidents might be provided assistance regardless of nationality or status or the circumstances in which they are found; (b) ships which have retrieved persons in distress at sea might be able to deliver the survivors to a place of safety; and (c) survivors, regardless of nationality or status, including undocumented migrants, asylum-seekers and refugees, and stowaways might be treated, while on board, in the manner prescribed in the relevant IMO instruments and in accordance with relevant international agreements and long-standing humanitarian maritime traditions.

117. *Search and rescue facilities*. Coastal States are required by article 98 of UNCLOS and by the SAR Convention to provide for the establishment of search and rescue facilities. IMO has in the past drawn attention to the fact that search and rescue (SAR) facilities are insufficient for effective operations globally, because a considerable number of States have not identified and made available responsible authorities to receive and act upon distress alerts. Only 66 States have become parties to the SAR Convention and many States have not concluded agreements establishing SAR regions in compliance with the annex to the Convention. The IMO Assembly at its 22nd session, in November 2001, in its resolution A.919(22), invited Governments to consider providing technical assistance for the provision and coordination of SAR services to States requesting such assistance.

118. The United Nations Office for Outer Space Affairs in its contribution to the present report provided information on the international COSPAS-SARSAT satellite system for search and rescue, which provides distress alert and location information for maritime, aviation and land users and supports the search and rescue objectives of IMO and the International Civil Aviation Organization. The system is available to any country on a non-discriminatory basis and free of charge for the end-user in distress.[20]

Vessels in distress

119. The incident last year involving the vessel Castor, in which the salvors of the fully laden tanker (carrying 29,500 tonnes of unleaded gasoline) were unable to find a sheltered place to effect cargo transfer and repairs for some 35 days, raised a great deal of concern about the provision of places of refuge for ships in distress.

120. As a result, IMO has decided to address as a matter of priority the issue of providing places of refuge to vessels in distress at sea, from the "operational safety" point of view, by preparing guidelines for the identification and designation of suitable places of refuge; the evaluation of risks associated with the provision of places of refuge; and actions a master of a ship should take when in need of places of refuge.[21] Legal issues, such as jurisdiction, rights of coastal States, liability, insurance and bonds, will be considered by the Legal Committee.[22]

E. Implementation and enforcement

121. IMO reports that at present, between 110 and 143 States (depending on the treaty) have become parties to the main IMO Conventions. Since the general degree of acceptance of these shipping Conventions is mainly related to their implementation by flag States, it is of paramount importance to note that States parties to these Conventions in all cases represent more than 90 per cent of the world's merchant fleet.

122. With many of the international rules and standards in place, the emphasis has shifted in recent years from the development of new rules to the effective implementation of those which have already been adopted. The adoption of the ISM Code, the establishment of the IMO Subcommittee on Flag State Implementation, the expanded role that has been given to the IMO Secretariat in monitoring the implementation of the STCW Convention, and the growing number of Memoranda of Understanding on port State control at the regional level, all attest to this change in emphasis.

123. *Flag State implementation.* The responsibility for ensuring that the global rules and standards are actually put in place on all ships rests with the flag State. Indeed, safety of navigation and the prevention of pollution from vessels depend on the exercise of its effective jurisdiction. In recognition of the central role of the flag State and in view of the fact that some States may lack the skills and resources to carry out their responsibilities effectively, IMO has over the years developed measures which, inter alia, strengthen the management of shipping companies and assist flag States in assessing their performance. IMO provides technical assistance to individual States upon request. It has also been very active in strengthening port State control.

124. The International Safety Management (ISM) Code, which provides a framework for shipping companies' management and operation of their fleet, will become mandatory for all ships on 1 July 2002. Passenger ships, oil tankers, chemical tankers, gas carriers, bulk carriers and high-speed cargo craft of 500 gross tonnage and above have been required to implement the Code since 1998, when it entered into force. The IMO Assembly adopted "Revised Guidelines on the implementation of the ISM Code by Administrations" in November 2001 (resolution A.913(22)) to take account of the second phase of ISM implementation, as well as the amendments to the Code on certification and verification, which were adopted in 2000.

125. In preparing for the implementation of the second phase of the Code, IMO provided assistance to maritime administrations through technical cooperation activities and requested the assistance of port State control systems in assessing the level of implementation. In addition, IMO started working on issues related to the registration of ships and the transfer of flag in order to assess the need for introducing international procedures and requirements supporting the goals of IMO, taking into account previous considerations of these issues within and outside IMO. The IMO Assembly, in its resolution A.923(22), on "Measures to prevent the registration of 'phantom' ships", invited Governments to exhaust all means available to them to obtain evidence that a ship previously registered under another State's flag has been deleted from the register, or that the consent to the transfer of the ship has been obtained from that State's register.

126. In order to assist flag States in assessing their capabilities, IMO revised the procedures for the self-assessment of flag State performance to incorporate criteria and performance indicators (IMO Assembly resolution A.912(22)) and invited flag States to collect more detailed information on the authorizations granted to recognized organizations to work on their behalf.

127. IMO also approved an Assembly resolution on "Measures to further strengthen flag State implementation" (resolution A.914(22)) as part of the development of a culture of safety and environmental conscience in activities undertaken by IMO. Such initiative complemented the ongoing work on the invitation of the Commission on Sustainable Development in its decision 7/1, paragraph 35 (a), to develop binding measures to ensure that ships of all flag States meet international rules and standards so as to give full and complete effect to UNCLOS, especially article 91 (Nationality of ships), as well as provisions of other relevant conventions.

128. As regards measures to strengthen flag State implementation in the area of fisheries, IMO reported that it had considered the report of the first meeting of the Joint FAO/IMO Working Group, containing proposed measures relating to the member States' responsibility either as flag Sates or as port States. It recognized that, although measures relating to fisheries management were outside its competence, there were many safety and environmental protection issues relating to the IUU fishing which were within the purview of IMO, and that the consideration of these issues would be of assistance to FAO. It recognized that the transfer of ships was also a problem in relation to illegal fishing activities.

129. *Port State control.* While never removing the primary obligation on flag States for ensuring compliance with standards, port State control is an important part of the safety net and an effective weapon to be used against substandard operators. One of the strengths of port State control is that the standards it upholds are the same throughout the world. The objective is to secure a high level of quality universally and to remove the non-compliers from the scene.

130. IMO has adopted comprehensive guidelines and recommendations on port State control procedures in respect of ships that are required to comply with

SOLAS, the LL Convention, MARPOL 73/78, STCW and the International Convention on Tonnage Measurement for Ships (IMO Assembly resolution A.787(19), as amended by resolution A.882(21)).

131. Building upon the increased involvement of States, other than the flag States, in the inspection of ships and the investigation of casualties, IMO in its contribution noted that it has worked towards the development of a harmonized global regime for port State control activities through the renewed support to regional Memoranda of Understanding on port State control by the training of port State control officers, assistance to port State control committees and the promotion of communication and exchange of information between flag and port States. To date, eight regional agreements on port State control have been signed and are currently in operation. The 1982 Paris Memorandum of Understanding on Port State Control is the first such agreement. The others cover the following regions: Latin America, Asia-Pacific, the Caribbean, the Mediterranean, the Indian Ocean, West and Central Africa and the Black Sea. A regional Memorandum of Understanding for the Gulf region is being prepared for consideration and adoption.

132. Given the success of the port State control concept in the area of maritime safety and pollution prevention, consideration has been given to its application in the fisheries sector. The 1995 Fish Stocks Agreement provides for the exercise of port State jurisdiction to promote the effectiveness of subregional, regional and global conservation and management measures. IMO notes that while there was no legal basis for extending existing port State control provisions in IMO instruments to fishing vessels, since the 1993 Protocol to the Torremolinos Convention and the STCW-F Convention are not yet in force, encouraging member States to ratify those instruments at an early date would be a positive means of dealing with the problem. IMO has also offered to cooperate with FAO to develop a port State control regime of its own through sharing of experience and expertise on the matter.

V. Crimes at sea

133. Maritime security can be threatened by a terrorist attack and also as a result of other criminal activities at sea, for example, acts of piracy and armed robbery against ships, smuggling of migrants, illicit traffic in narcotic drugs or psychotropic substances and illicit traffic in firearms. Many of these crimes are the work of organized criminals whose global reach and evasion of national controls threaten the security and stability of all States and make effective national measures and global action imperative.

134. In the 20 years since the adoption of UNCLOS, crimes at sea have become more prevalent and are increasing. Indeed, the framers of the Convention never envisaged many of the crimes which exist today and, as a result, either included only a general provision (e.g., in the case of illicit traffic in narcotic drugs and psychotropic substances) or none at all (e.g., in the case of hijacking or smuggling of migrants by sea), regarding their suppression. Since 1982, a number of conventions have been adopted which are aimed at the suppression and combating of specific criminal activities, including those which take place at sea.[21] However, it is important to note that the objectives of these conventions are in turn supported by other provisions of UNCLOS, for example, those relating to the status of ships, duties of the flag State and the right of visit with respect to ships without nationality. Indeed, it must be borne in mind that if flag States were to comply with the obligations set out in UNCLOS and exercise their jurisdiction and control over ships flying their flag and ensure that they comply with relevant international rules and regulations, it would greatly help prevent their illegal use for criminal activities. The United Nations Department of Political Affairs, in its contribution to the present report, highlighted the importance of full flag State control in the context of conflict prevention and peace-building in order to prevent the illegal use of ships for arms and diamond trafficking. They suggested that a comparative study of the degree of control of flag States could be instructive.

135. Major obstacles for coastal States in the suppression and combating of crimes at sea include the lack or shortage of trained personnel and equipment; the obsolescence or inadequacy of most national legislation; and weak maritime law enforcement capability of national agencies. A necessary first step in addressing some of these problems is for States to become parties to the relevant conventions that govern the suppression and combating of these crimes and ensure that they have the necessary legislation in place. Some States may require technical assistance in this regard. The General Assembly in its resolution 56/120 of 19 December 2001, entitled "Action against

transnational organized crime: assistance to States in capacity-building with a view to facilitating the implementation of the United Nations Convention against Transnational Organized Crime and the Protocols thereto", noting that the fight against organized crime is a common and shared responsibility of the international community necessitating cooperation at the bilateral and multilateral levels, encouraged Member States to make voluntary contributions to the United Nations Crime Prevention and Criminal Justice Fund for the provision to developing countries and countries with economies in transition of technical assistance they might require for the implementation of the Convention and the Protocols thereto, including assistance for the preparatory measures needed for their implementation.

136. Cooperation among States is also very important in the area of enforcement. The harmonization of legal approaches to enforcement at the bilateral or regional level clearly facilitates and promotes cooperation. In addition, cooperative law enforcement training can lead to common maritime law enforcement procedures that can be extremely beneficial in combating maritime crime.[24]

137. This part of the report focuses on some of the most serious crimes at sea, such as acts of terrorism, piracy and armed robbery against ships, smuggling of migrants, stowaways and illicit traffic in narcotic drugs or psychotropic substances. However, it should be borne in mind that violations of international rules and standards for the protection or preservation of the marine environment, such as illegal dumping or illegal discharge of pollutants from vessels, or the violation of rules regulating the exploitation of the living marine resources, such as illegal fishing, can also constitute criminal acts and threaten maritime security.

A. Prevention and suppression of acts of terrorism against shipping

138. Maritime security has been placed high on the agenda of the international community following the terrorist attacks on the United States of America on 11 September 2001. Attention has focused on the adequacy of measures to prevent acts of terrorism, which threaten the security of passengers and crews and the safety of ships.

139. Over the years, a number of measures have been adopted by IMO to prevent unlawful acts which threaten the safety of ships and the security of their passengers and crews, the most significant of which are the 1988 SUA Convention and the 1988 SUA Protocol.[25]

140. Both the General Assembly (resolution 56/12) and the IMO Assembly (resolution A.924(22)) have urged States to become parties to the 1988 SUA Convention and its Protocol and to ensure their effective implementation. The IMO Assembly in its resolution A.924(22) also requested the relevant IMO committees to review, as a matter of high priority, whether any of the existing IMO measures needed to be updated or whether there was a need to adopt new security measures. The Secretary-General of IMO has been requested to take appropriate measures, within the Integrated Technical Cooperation Programme, to assist Governments in assessing, putting in place or enhancing, as the case may be, appropriate infrastructure and measures to strengthen port safety and security to prevent and suppress terrorist activities directed against ports and port personnel as well as ships in port areas, passengers and crews.

141. A Conference on Maritime Security will be held by IMO in December 2002 to consider any new or amended regulations to enhance ship and port security. An inter-sessional working group met from 11 to 15 February 2002. Measures proposed for consideration include: (a) review of issues relating to the installation of automatic identification systems on ships; (b) consideration of the need for security plans on ships, port facilities and offshore terminals; (c) review of the need for identification verification and background security checks for seafarers; (d) ensuring a secure chain of custody for containers from their port of origin to their destination;[26] and (e) introduction of a mandatory requirement to provide details on the beneficial owner of a vessel prior to entry into port.[27]

B. Piracy and armed robbery against ships

142. The General Assembly, at its fifty-sixth session, in its resolution 56/12 on "Oceans and the law of the sea", expressed its deep concern once again at the "continued increase in the number of incidents of piracy and armed robbery at sea, the harm they cause to

seafarers, and the threats they pose to the safety of shipping and to the other uses of the sea, including marine scientific research and, consequently, to the marine and coastal environment, which are exacerbated further by the involvement of transnational organized crime".

1. Reports on incidents

143. *The situation in 2000.* IMO compiles and distributes monthly, quarterly and annual reports on piracy and armed robbery against ships submitted by Governments and international organizations. Monthly reports list all incidents reported to IMO. Quarterly reports are composite reports accompanied by an analysis, on a regional basis, of the situation and an indication whether the frequency of incidents is increasing or decreasing and advising on any new feature or pattern of significance.

144. Based on the periodical reports and additional information provided orally by the IMO secretariat, the IMO Maritime Safety Committee (MSC) at its 74th session, in 2001, noted with deep concern that the number of acts of piracy and armed robbery against ships which were reported to have occurred in 2000 was 471, representing an increase of 162 (52 per cent) over the figure for 1999; and that the total number of incidents of piracy and armed robbery against ships reported to have occurred from 1984 to the end of May 2001 was 2,309 (see also A/56/121, para. 253). Most of the attacks worldwide were reported to have occurred in territorial waters while the ships were at anchor or berthed. The Committee was particularly concerned that, during the same period, the crews of the ships involved in the reported incidents had been violently attacked by groups of 5 to 10 persons carrying knives or guns, as a result of which 72 crew members had been killed, 129 had been wounded and 5 had been reported missing.[28]

145. MSC decided that a more precise distinction in the reporting of piracy and armed robbery attacks was needed to distinguish between actual attacks and attempts (threats) thereof, so that a more accurate picture of the situation might be drawn. The Committee also once again invited all Governments (of flag, port and coastal States) and the industry to intensify their efforts to eradicate those unlawful acts. It urged: (a) flag States to make reports on attacks or threats thereof using the agreed format; (b) coastal States to report on action they have taken when informed of such unlawful acts having taken place within their national waters; (c) the industry to ensure reporting of all incidents to flag/coastal States; and (d) coastal States to put in place national legislation for dealing with incidents piracy and armed robbery.

146. *The situation in 2001.* According to the annual report on piracy for the year 2001 issued by the International Maritime Bureau (IMB) of the International Chamber of Commerce (ICC) on the basis of statistics of incidents of piracy and armed robbery reported to its Piracy Reporting Centre, during 2001, the total number of reported attacks worldwide dropped to 335, compared to 469 in 2000, but still remained higher than the 300 attacks reported in 1999. Most of the attacks took place while the ships were at anchor. However, there has been a significant rise in incidents of hijackings, which normally involve organized crime syndicates. During 2001, 16 incidents took place, compared to 8 the previous year. Another new trend which is emerging in the northern part of the Malacca Straits involves kidnapping of crew members for ransom. This "kidnap and ransom" trend previously was confined to Somali waters. The amount demanded by the attackers is normally not exorbitant and shipowners pay the amount to avoid complications. IMB believes that there may be more incidents which may have gone unreported because owners are being threatened and warned not to report to the authorities.[29]

147. The industry continues to express its concerns regarding the frequency and the ferocity of piracy and armed robbery attacks, recognizing that many coastal States are unable or ill-equipped to counter this menace. They believe that pirates and armed robbers are very well aware of the weaknesses in enforcement and the law, and cross maritime jurisdictions intentionally to evade arrest. There is now an increasing fear that the rise in piracy and armed robbery may undermine sea transport in the areas where most of the incidents take place.[30] In this regard, it can be noted that so far there are basically no insurance premiums for vessels operating in such areas.[31]

148. The industry has called upon the United Nations to encourage its Members to take preventive action, such as allocating sufficient manpower in the form of law enforcement personnel; instituting national legislation addressing specific crimes and enforcing appropriate punishment of offenders; establishing an environment of partnership and cooperation involving

coastal States, flag States and the shipping industry in confronting these risks; and instituting robust security measures around terminals and installations, including patrols around all vessels entering and leaving, at anchor or lying alongside in a port, as well as restrictions aimed at only allowing authorized personnel to enter port areas.[32]

2. Actions taken at the global and regional levels

149. *The Consultative Process and the General Assembly.* The need for capacity-building and the cooperation of all States and relevant international bodies, at both regional and global levels, as well as the business sectors to prevent and combat piracy and armed robbery was emphasized at the second meeting of the Consultative Process during the discussions on coordination and cooperation in combating piracy and armed robbery at sea[33] — one of the areas of focus — and reinforced by the General Assembly at its fifty-sixth session (see resolution 56/12, paras. 29-32).

150. *International Maritime Organization.* IMO will consider the General Assembly resolution and the report of the Consultative Process at the forthcoming session of MSC in May 2002. IMO reported that the IMO Assembly at its 22nd session, in November 2001, adopted the Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery against Ships (resolution A.922(22)) and "Measures to prevent the registration of 'phantom' ships" (resolution A.923(22)). (Details on these resolutions are provided in the 2001 report, A/56/58, paras. 196-201.) Other measures under consideration in IMO to reduce the operation of phantom ships are to mark ships indelibly and visibly with the IMO ship identification number externally and provide access to the Lloyds Maritime Information Services database.

151. As regards developments at the regional level, the IMO Secretariat in its contribution provided information on the evaluation and assessment missions it had undertaken during 2001. The assessment missions follow up on previous IMO piracy seminars and workshops and examine, with responsible governmental representatives, what measures the national authorities responsible for anti-piracy activities had taken to implement the relevant IMO guidelines; where such measures had not been successful and what had impeded their implementation; and, eventually, how IMO could assist in overcoming any difficulties encountered in the process.

152. IMO conducted three evaluation and assessment missions in 2001: one in Indonesia (13 and 14 March 2001); one in Singapore for selected countries bordering the Indian Ocean, the Malacca Straits and the South China Sea/Pacific Ocean (15 and 16 March 2001), and one in Ecuador for selected countries of the Latin American region (25 and 26 September 2001). The next evaluation and assessment mission to be conducted by IMO will be for West Africa and will be held in Ghana in March 2002.

153. IMO reported that the main problems identified by the participants at the assessment missions in Indonesia and in Singapore meetings were: (a) the continuing economic situation prevailing in certain parts of the region; (b) the resource constraints on law enforcement agencies; (c) the lack of communication and cooperation among the various national agencies involved; (d) the slow response time after an incident has been reported to the coastal State concerned by affected ships; (e) general problems of incident reporting, e.g., alerting the nearest coastal States as well as other ships in the areas of a ship under attack or threat of attack; (f) the need for the timely and proper investigation into reported incidents; (g) the need for the prosecution of pirates and armed robbers once they are apprehended; and (h) the lack of regional cooperation. With respect to the latter, the Singapore Regional Meeting invited the Secretary-General of IMO to undertake consultations with Governments in the region for the purpose of convening, at an appropriate time, a meeting to consider concluding a regional agreement on cooperation against piracy and armed robbery against ships.[34]

154. The regional meeting in Ecuador identified the same main problem areas as the Singapore meeting. The participants agreed on the importance of strengthening subregional and regional cooperation and coordination among countries in the region by such means as exchange of intelligence, patrolling certain vulnerable areas, joint and/or coordinating exercises, and also agreed that the Operative Network for Regional Cooperation among Maritime Authorities of South America, Mexico, Panama and Cuba (ROCRAM) should be used as a coordinating body for developing a regional strategy on cooperation and coordination.[35]

155. The Department of Political Affairs in its contribution to the present report suggested that a comparative assessment of the degree of compliance by

Governments with the series of actions recommended by IMO and other international organizations and forums for preventing and suppressing acts of piracy and armed robbery against ships could greatly help to determine the most efficient measures and the level of awareness of Governments of the dangers posed to national and regional interests by acts of piracy and armed robbery against ships.

C. Smuggling of migrants

156. Incidents involving illegal migration are escalating and defy an easy solution. Poverty, lack of opportunities, political and social violence in the countries of origin, which are mainly developing countries, are among the root causes leading people to migrate, often illegally, from one country to another. The preferred destinations for many of these people are developed countries. Where legal entry to another country proves impossible or is not expected, those seeking a new life will risk everything to escape, either by themselves or with the help of criminal networks.

157. Criminal networks provide the market for fraudulent travel documents, clandestine transportation and border-crossing. Smuggling of people is considered by organized crime groups to be such a highly profitable market that many have transferred their knowledge, facilities and networks for smuggling drugs and other goods to this illegal activity. High profits are maintained by hiding people in traditional modes of transport, including sealed containers on board vessels, or by hiding people in the holds of ships, which are often unseaworthy or not equipped to carry large numbers of passengers. Whatever the means of transport, the conditions are normally equally dangerous and unsafe.

158. The victims of the smuggling activity are often seen as parties to a criminal transaction. In reality, they are often victimized economically, physically or otherwise. They are often deceived about their country of destination and are sometimes forced to engage in criminal activities in the country of destination in order to reimburse the expenses incurred. Women and children in particular are often enslaved by the criminals in the country of destination. The vulnerability of migrants, in particular irregular or illegal migrants, as a result of their precarious situation in society often leads to violations of their most basic human rights.

159. The incident involving the rescue by the Norwegian vessel *Tampa* (a container vessel built to accommodate 40 people) in August 2001 of more than 400 illegal migrants from a sinking Indonesian ferry and the difficulty of finding a place to disembark them not only brought to the fore the range and complexity of the issues surrounding the problem of illegal migration, but also raised concerns that the very complexity of the issues might act as a deterrent in the future for those on board a ship to exercise the fundamental duty to render assistance to people in distress at sea. The incident raised two main maritime issues which need to be addressed: (a) the suppression and combating of smuggling of migrants by sea; and (b) the rescue at sea of persons in distress and their delivery to a place of safety (addressed in greater detail in para. 116 above).

160. With respect to the former issue, it may be noted that a new instrument has been developed providing for the suppression and combating of smuggling of migrants by sea, i.e., the United Nations Protocol against the Smuggling of Migrants by Land, Sea and Air, supplementing the United Nations Convention against Transnational Organized Crime adopted in 2000. The Protocol has not yet entered into force. It has been signed so far by 97 States and ratified by 5.[36] Its provisions are based to a great extent on the 1988 United Nations Convention against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances, UNCLOS and the IMO Interim Measures for Combating Unsafe Practices Associated with the Trafficking or Transport of Migrants by Sea, adopted in 1998 and revised in 2001 (for a more detailed description, see A/56/58, para. 228). The Protocol and the IMO Interim Measures provide cooperative mechanisms for the interception of a vessel suspected of carrying illegal migrants by a State other than the flag State. The IMO Interim Measures advise Governments of measures they can take pending the entry into force of the Protocol. Unsafe practices are defined for the purposes of the IMO Interim Measures as any practice which involves operating a ship in violation of SOLAS, including the carriage of more than 12 persons on board a cargo ship. Port States are recommended to prevent a vessel engaged in unsafe practices from sailing. Neither the Protocol nor the IMO Interim Measures address the rescue of illegal migrants in distress at sea and their subsequent disembarkation. The Protocol contains a savings clause in its article 19.

161. While not specifically dealing with the issue of the smuggling of migrants, UNCLOS grants the coastal State the right to adopt laws and regulations to prevent the infringement of its immigration laws and regulations in its territorial sea (article 21). In straits used for international navigation and in archipelagic sea lanes, foreign ships must comply with the laws and regulations of the States bordering the strait or the archipelagic States regarding the loading or unloading of any person in contravention of immigration laws and regulations (articles 42 and 54). In the contiguous zone, the coastal State has the right to prevent and punish the infringement of its immigration laws and regulations committed within its territory or territorial sea (article 33).

162. The problem of illegal migration falls within the realms of peace and security, economic and social development, human rights, organized crime, law of the sea and maritime law. The importance of a comprehensive approach to the problem and a coordinated approach to its resolution is therefore very important.

163. Following the *Tampa* incident, the Secretary-General of IMO brought the issue of persons rescued at sea and/or asylum-seekers and refugees to the attention of a number of competent specialized agencies and programmes of the United Nations pointing out the need for a coordinated approach to all attendant aspects at the United Nations inter-agency level. He proposed an inter-agency review of the existing mandates and programmes with a view to identifying gaps, inconsistencies, duplications or overlaps, and the establishment of a coordinating mechanism to ensure that the response of the United Nations in any future emergency can be coordinated in a consistent manner. The IMO Assembly at its 22nd session, in resolution A.920(22), "Review of safety measures and procedures for the treatment of persons rescued at sea" (see para. 116 above), requested the Secretary-General of IMO to pursue his initiative and inform the competent IMO bodies of developments in due course.

D. Stowaways

164. A stowaway is defined in the IMO Guidelines for the Allocation of Responsibilities to Seek the Successful Resolution of Stowaway Cases, adopted by the IMO Assembly in its resolution A.871(20) in 1997, as a person who is secreted on the ship or in cargo which is subsequently loaded onto the ship, without the consent of the shipowner or the master or any other responsible person, and who is detected on board after the ship has departed from a port and reported as a stowaway by the master to the appropriate authorities.

165. The IMO Guidelines were developed to provide an internationally agreed procedure for dealing with stowaways, since the 1957 International Convention relating to Stowaways had not entered into force and it did not appear that it would. The basic principles contained in the Guidelines have now been reflected in amendments to the IMO Convention on the Facilitation of International Maritime Traffic in the form of new standards and recommended practices, following their adoption at the 29th session of the IMO Facilitation Committee (7-11 January 2002), and are expected to enter into force on 1 May 2003.

166. The new measures in the Facilitation Convention call upon public authorities, port authorities, shipowners and their representatives, as well as shipmasters, to cooperate in preventing stowaway incidents. Among other things, port areas are to be regularly patrolled, special storage facilities for cargo particularly susceptible to stowaway access are to be established and persons and cargo entering these areas are to be continuously monitored. Contracting Governments must require ships entitled to fly their flag to undergo a thorough search in accordance with a specific plan or schedule when departing from a port where there is a risk that stowaways may be boarded. Passenger ships are to be exempted from the requirement.

167. The new measures also refer specifically to the problem of smuggling of people and call for cooperation between port authorities and relevant authorities such as police, customs and immigration to combat the practice.

168. Where stowaways do manage to get on board and remain undetected until the voyage is well under way, the masters of ships are required to take appropriate measures to ensure the security, general health, welfare and safety of any stowaway while on board, including providing them with adequate provisions, accommodation, proper medical attention and sanitary facilities.

169. With regard to disembarkation, the new measures state that public authorities shall urge all shipowners operating ships entitled to fly their flag to instruct their

masters not to deviate from the planned voyage to seek the disembarkation of stowaways discovered on board the ship after it has left the territorial waters of the country where the stowaways embarked, unless permission to disembark the stowaway has been granted by the public authorities of the State to whose port the ship deviates or repatriation has been arranged elsewhere with sufficient documentation and permission for disembarkation, or if there are extenuating security, health or compassion-related reasons. Stowaways found inadmissible in the country of disembarkation should be returned from their point of disembarkation to the country where they boarded the vessel. The new measures are to be applied in accordance with international protection principles as set out in international instruments, such as the 1951 Convention relating to the Status of Refugees and the 1967 Protocol relating to the Status of Refugees and relevant national legislation.

170. The Convention on Facilitation of International Maritime Traffic (FAL Convention) provides that any contracting Government which finds it impracticable to comply with any international standard, or deems it necessary to adopt differing regulations, must inform the Secretary-General of IMO of the "differences" between its own practices and the standards in question.

E. Illicit traffic in narcotic drugs and psychotropic substances

171. The United Nations International Drug Control Programme (UNDCP) reported that the Commission on Narcotic Drugs at its forty-fourth session (March 2001) continued to express its concern over the increasing prevalence of illicit traffic by sea in narcotic drugs, psychotropic substances and precursors. In order to further the obligation of all States parties to the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances to cooperate to the fullest extent possible in suppressing illicit traffic at sea (article 17), the Commission in its resolution 44/6, entitled "Enhancing multilateral cooperation in combating illicit traffic by sea", requested UNDCP to provide technical assistance and training on maritime cooperation to interested States against illicit drug traffic by sea. It identified as possible technical assistance activities the development of a user-friendly reference guide to assist parties when making requests for verification of nationality and for consent to board, search and take appropriate action under article 17 of the 1988 Convention and to assist competent authorities who have the responsibility to receive and respond to such requests pursuant to article 17; the development of model reference formats to facilitate the exchange of information between the requesting and requested State; and the collection of information on bilateral and regional agreements for reference purposes. In addition, the Commission urged UNDCP to cooperate with States parties to the 1988 Convention and encouraged States to contribute their maritime expertise to the formulation of technical assistance and training.[37]

172. During 2001, UNDCP developed the first draft of a manual for competent national authorities designated pursuant to paragraph 7 of article 17 of the 1988 Convention. The manual details the necessary legislative framework for effective cooperation and makes recommendations on the functions, powers, administrative capacity, channels of communication and procedures essential to enable the designated competent authority to receive and respond to article 17 requests from another party. The draft manual was reviewed by an Expert Group (Vienna, 22-24 January 2002) and will be completed during 2002. It will serve as a companion to the Maritime Drug Law Enforcement Training Guide, produced by UNDCP in 1999. Upon completion of the manual, UNDCP plans to hold training courses for States that request help in establishing their article 17 competent national authorities.

173. UNDCP also reported that considerable progress has been made in the negotiation of a regional agreement concerning cooperation in suppressing illicit maritime and aeronautical trafficking in narcotic drugs and psychotropic substances in the Caribbean area. The agreement will seek to enhance the effectiveness of the provisions of article 17 of the 1988 Convention. It is anticipated that the negotiations will be completed and the agreement opened for signature in 2002.

VI. Sustainable development of marine resources, underwater cultural heritage

A. Conservation and management of marine living resources

174. During the reporting period, of paramount importance were the actions taken to implement and enforce binding or non-binding instruments. However, one important development occurred in the search for better conservation and management of marine living resources, namely the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, adopted by the joint FAO-Government of Iceland Conference on Responsible Fisheries in the Marine Ecosystem in October 2001. The Declaration expressed the firm intention of the Conference participants to incorporate ecosystem considerations into fisheries management in an effort to reinforce responsible and sustainable fisheries. To that end, the document urged the international community to undertake the following actions: (a) continuation of the effective implementation of the FAO Code of Conduct, the International Plans of Action (IPOAs) and the Kyoto Declaration; (b) adoption of effective management plans with incentives that would encourage responsible fisheries and the sustainable use of marine ecosystems, including mechanisms for reducing excessive fishing efforts to sustainable levels; (c) strengthening, and where appropriate establishment of Regional Fisheries Management Organizations (RFMOs) that would incorporate in their work ecosystem considerations, and improvement of cooperation between RFMOs and regional bodies in charge of protecting the marine environment; and (d) prevention of adverse effects of non-fisheries activities on the marine ecosystems and fisheries.

175. Moreover, the Reykjavik Declaration stressed that in addition to the immediate application of the precautionary approach, it was important to advance the scientific basis for incorporating ecosystem considerations into fisheries management, building on existing and future scientific knowledge. It also urged the international community to strengthen international cooperation with a view to supporting developing countries in incorporating ecosystem considerations into fisheries management. It further encouraged technology transfer contributing to sustainable management, sound regulatory frameworks, including where necessary removal of trade distortions, and promotion of transparency. FAO and other relevant technical and financial organizations were invited to cooperate in providing States with access to technical advice and information about effective management regimes and about experience for such arrangements, as well as other support, devoting special attention to developing countries. FAO was also encouraged to work with scientific and technical experts from all different regions to develop technical guidelines for best practices with regard to introducing ecosystem considerations into fisheries, and to present them at the next session of the FAO Committee on Fisheries.

176. In its contribution to the present report, the Economic Commission for Latin America and the Caribbean (ECLAC) stated that a regional expert group meeting on responsible fishing in the marine ecosystem was held from 3 to 5 December 2001 to analyse the result of the Reykjavik Conference, vis-à-vis the work being undertaken by ECLAC and the FAO regional office for Latin America and the Caribbean on the implementation of the Convention on Biological Diversity to the marine environment.

Implementation of instruments

177. The adoption of international instruments alone, whether legally binding or of a voluntary nature, is not sufficient to ensure the conservation and sustainable use of marine living resources. To be effective, they must be translated into concrete measures at the regional, subregional and national levels and implemented by all stakeholders. Thus, States would have to use their prescriptive and enforcement jurisdictions to implement through domestic legislation the relevant provisions of these international instruments. RFMOs would be required also to incorporate into their fisheries management such new tools as, inter alia, the precautionary approach, the ecosystem approach and the use of trade-related schemes to prevent illegal, unreported and unregulated fishing (IUU fishing). In addition, while on the one hand competent intergovernmental organizations would be invited to implement operational activities mandated by these instruments, on the other hand, NGOs are expected to monitor, on behalf of the general public, the conservation and sustainable use of the marine living resources of the world's oceans and seas as well

as the implementation of all relevant instruments to ensure such conservation and sustainable use.

178. *Implementation of the 1995 Fish Stocks Agreement and General Assembly resolutions.* In order to give effect to the relevant provisions of the 1995 Fish Stocks Agreement and General Assembly fisheries resolutions to ensure the long-term sustainability of marine living resources, and in recognition of the fact that effective flag State control is fundamental to ensure the effectiveness of fisheries management, many flag States have taken steps to ensure that fishing vessels entitled to fly their flag do not engage in any activity which undermines the effectiveness of international conservation and management measures or in any activity that constitutes unauthorized fishing in areas under the national jurisdiction of other States. Measures have been introduced also to prohibit fishing on the high seas without a proper authorization by the flag State. Under a number of regulations, a fishing vessel may be registered or granted a licence only if sufficient links exist between the flag State and the vessel.[38] Similarly, a number of regulations prohibit reflagging[39] or stipulate that the national flag may be granted only to vessels that have surrendered their flag of origin.[40]

179. Moreover, fisheries regulations in a growing number of States provide that conditions for granting fishing permits to vessels for high seas fishing require compliance by vessels with applicable international measures for conservation and management.[41] Most of such fisheries laws require flag States to maintain a record of fishing vessels entitled to fly their flag and authorized by them to fish on the high seas.[42] They also provide that fishing vessels must be marked in accordance with the FAO Standard Specifications for the Marking and Identification of Fishing Vessels.[43] Some of them even stipulate that licence applications may be denied or withdrawn if the vessel or its owner had taken part in IUU fishing on the high seas[44] or if a previous licence for high seas fishing granted to the vessel by a foreign State had been suspended or withdrawn because the vessel had undermined the effectiveness of international conservation and management measures.[45]

180. Furthermore, a number of States have introduced provisions that make it mandatory for vessels flying their flag to submit catch reporting and other fishery data from their high seas fishing operations or to have on board national observers or vessel monitoring systems (VMS) as means of enhancing national monitoring, control and surveillance.[46] These fisheries regulations also provide for sanctions of sufficient severity for high seas fisheries violations, which may include the imposition of fines, suspension or withdrawal of fishing permits or licences, and the cancellation of registration of the fishing vessels.[47] Also, some States have placed restrictions on the export of vessels decommissioned from their national fishing fleets, to avoid exporting excess fishing capacity and reflagging.[48] Other States have indicated that they have joined or intended to join, as full members, competent RFMOs in order to give effect to their duty to cooperate in the conservation and management of high seas fisheries.[49]

181. As part of their growing role in ensuring compliance with subregional and regional fisheries conservation and management measures, a number of States have begun to implement port State control in respect of foreign fishing vessels calling voluntarily at their ports or at offshore terminals through, inter alia, the monitoring of trans-shipments and landings, and the collection of data on catch and effort.[50] They have also enacted legislation establishing restrictions or prohibition of landings or requiring the issuance of licences for fishing vessels to enter a port.[51] Under these national regulations, they have denied port access to vessels known to have engaged in illegal fishing or have closed off to their owners or operators access to markets by prohibiting landings to catches that have not been harvested in conformity with agreed regional conservation and management measures.[52] Of particular relevance are those regulations which prohibit not only landings, but also the supplying of services in ports to fishing vessels previously engaged in high seas activities that might have an adverse impact on fishery conservation and management in the exclusive economic zone of the State concerned,[53] as well as other regulations which prohibit the importation of fish caught illegally in areas under the national jurisdiction of other States.[54]

182. In addition, several coastal States have taken measures to control foreign fishing operations in areas under their national jurisdiction through the adoption of laws and regulations governing fishing activities and the implementation of monitoring, control and surveillance (MCS) systems for fishing operations in their exclusive economic zones. These include requirements for fishing authorization or fishing

permits, types of gear, daily maintenance of logbooks, daily reporting of catches and vessel geographical positions, statistical data reporting, vessel monitoring systems, prior authorization for trans-shipments at sea, obligation to land all or part of the catch, prohibition of discard of by-catches, and obligation to stow fishing gear when fishing vessels are in transit in areas under national jurisdiction. Measures have also been taken to enforce those fisheries laws and regulations in areas under their national jurisdiction.[55]

183. However, limited resources and the large size of the ocean space over which they exercise control have had an adverse impact on the ability of many developing coastal States to enforce their conservation and management measures against unauthorized fishing. For these countries, unauthorized fishing activities had been carried out through, inter alia, the use of flags of convenience, illegal fishing on the ocean areas between the exclusive economic zones and the high seas, and misreporting of catch. Developing coastal States dependent on access fees for their economic development are particularly vulnerable because of distortions to fee levels, which are conditional upon the volume of catch.[56]

184. Consequently, in regions such as the South Pacific, coastal States have established a regional register of foreign vessels with a common database of all relevant information about vessels, updated annually, and containing information about their owners, operators and masters, call sign and port of registry. The regional register is used not only as a source of information on fishing vessels but also as a tool to ensure compliance with coastal States' laws and regulations. Coastal States have also taken additional measures, such as harmonization of the terms and conditions of access, and adoption of an agreement, which permits a party to extend its fisheries surveillance and law enforcement activities to the territorial sea and archipelagic waters of another party (see the report by SOPAC in annex II to the present report).

185. At the regional level, a number of RFMOs have started to work within the legal framework provided for in UNCLOS for the conservation and management of marine living resources and have undertaken to strengthen their role in fisheries management, as required by developments in international fisheries law.[57] These developments have compelled these RFMOs to ensure, inter alia, the long-term sustainability of marine living resources; to apply the precautionary approach; to follow an ecosystem-based management approach; to enhance scientific advice; to stress the importance of the collection and exchange of adequate data; to implement effective monitoring, control and surveillance systems; to agree on decision-making procedures which facilitate the timely adoption of conservation and management measures, as well as on effective mechanisms for the settlement of disputes.

186. For these purposes, a number of FAO regional fishery bodies have already begun to strengthen their role in the management of fisheries in areas under their respective competence. Some have converted their advisory functions into regulatory ones.[58] In this respect, reference should be made to the General Fisheries Council for the Mediterranean (GFCM), which has become a "Commission" with an autonomous budget and a new Scientific Advisory Committee to secure scientific advice in the management of Mediterranean fisheries. At its sessions in 1999 and 2000, the GFCM Scientific Advisory Committee addressed such issues as the definition of management units, the definition of parameters for measuring fishing effort, the identification of the actual state of resources and methodologies for determining such status, as well as the definition of required fleet data to be included in the regional register of vessels, as a necessary starting point to monitor fishing effort.[59] In addition, the Asia-Pacific Fishery Commission (APFIC) has also amended its constitution and updated its terms of reference to take into full account the recent fundamental changes in world fisheries and, in particular, to become equipped to play its role in the implementation of UNCLOS.[60]

187. In the Indian Ocean region, the Indian Ocean Tuna Commission (IOTC) has also endeavoured to strengthen its role in the conservation and management of highly migratory fish stocks in its area of competence. On the advice of its Scientific Committee, it has implemented mandatory requirements for IOTC members to provide timely, standardized statistical data for catch, effort and size for all species covered by the Commission, as well as data for catches of non-target species. It has also recommended a substantial reduction of the fishing capacity of distant long-line tuna fleets operating in the region, as well as registration and exchange of information on vessels, including flag-of-convenience vessels fishing for tropical tunas in IOTC area of competence.[61]

188. Non-FAO regional fishery bodies and arrangements have also implemented or are in the process of implementing the new approaches to fisheries conservation and management. For example, the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Northwest Atlantic Fisheries Organization (NAFO) and the North-East Atlantic Fisheries Commission (NEAFC) have considered developing the precautionary approach as a tool for fisheries management.[62] The ecosystem-based approach[63] and precautionary total allowable catch[64] have already been integrated into the fisheries conservation and management programmes of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT).[65] Moreover, organizations such as CCAMLR, NAFO and NEAFC have adopted MCS schemes to enforce their conservation and management measures. A number of RFMOs, including CCAMLR, CCSBT and ICCAT, have introduced catch documentation schemes and non-discriminatory trade restriction measures to combat IUU fishing in their convention areas.[66]

189. Furthermore, the agreements adopted recently for the establishment of new RFMOs in various regions of the world to regulate previously unmanaged fisheries, in accordance with the relevant provisions of UNCLOS and Agenda 21, chapter 17, have also incorporated most of the fisheries conservation and management principles provided in the international instruments. Among those agreements, attention should be drawn to the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific,[67] the Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean (SEAFO)[68] and the Framework Agreement for the Conservation of Living Marine Resources on the High Seas of the South-East Pacific ("Galapagos Agreement"),[69] which include provisions underlining the requirement of long-term sustainability of fish stocks, compatibility of measures within and beyond areas under national jurisdiction, ecosystem-based management and application of the precautionary approach, as well the important role of scientific information in fisheries management. These new agreements also include strong provisions enhancing flag States' responsibilities as required, inter alia, in the 1995 Fish Stocks Agreement as well as monitoring, control and surveillance and enforcement schemes involving reciprocal boarding and inspection by States parties, and port State measures modelled along those in the 1995 Fish Stocks Agreement. Moreover, the future establishment in the Indian Ocean region of the South-West Indian Ocean Fisheries Commission to promote the conservation, rational management and best utilization of non-tuna species will likely contribute to the objectives and purposes stated in Agenda 21, chapter 17.[70]

190. In addition, particular reference should be made to the biennial meeting of FAO and non-FAO regional fishery organizations and arrangements initiated by FAO in 1999 with a view to providing a forum for coordination and cooperation between those organizations and arrangements and allowing them to discuss topics of common interest, such as major issues affecting the performance of regional fishery bodies; the multifaceted approach to fishery status and trends; and the role of RFMOs as vehicles for good fishery governance.[71] At their second meeting in 2001, they deliberated on a number of issues of importance, such as the review of external factors that might affect the performance of fisheries bodies; regional fishery bodies performance indicators; IUU fishing; developments in the Convention on International Trade in Endangered Species (CITES) criteria for listing commercially exploited aquatic species; and ecosystem-based management of fisheries. At a recent meeting in January 2002, these fishery bodies addressed the issue of catch certification schemes and reviewed possibilities for a greater degree of coordination among fishery bodies on existing and potential schemes.[72]

191. In spite of the efforts to strengthen the role of RFMOs and arrangements in fisheries governance, progress is being hindered by the failure by States to accept and implement relevant international instruments, a lack of willingness by those States to delegate sufficient responsibility to regional bodies and the lack of effective enforcement of management measures at both national and regional levels.[73] The performance of many RFMOs is also adversely affected by inadequate financial resources, particularly in respect of FAO fishery bodies, ineffective decision-making procedures that allow non-compliance by members with management decisions, inadequacy of scientific advice and IUU fishing by vessels flying flags of convenience.

192. Nevertheless, recent developments seem to provide some indications of progress towards a

progressive implementation of the objectives of the Rio Conference.[74] The most noteworthy development is the recent entry into force of the 1995 Fish Stocks Agreement (see paras. 16-20) and its impact on the conservation and management of capture fisheries in general, as well as its impact on the conservation and management of the straddling fish stocks and highly migratory fish stocks in particular. It is believed that the Agreement, among other benefits, will strengthen the ability of RFMOs to carry out their conservation and management responsibilities, including incorporation of the new approaches to fisheries management. Reference should also be made to the dramatic decline in recent years of large-scale pelagic drift-net fishing activities on the high seas, as evidenced by the number of reported incidents; to measures taken by States to prevent unauthorized fishing in areas under the national jurisdiction of other States; and to efforts undertaken by States and RFMOs to reduce by-catches and discards through the use of turtle excluding devices, mesh size limitations, confiscation of catches, a ban on landing of juveniles and/or discards, levies on by-catch, and season/area closures of fishing grounds to limit by-catches and discards, which are reported periodically to the Secretary-General pursuant to General Assembly resolutions 46/215 of 20 December 1991 and 49/116 and 49/118 of 19 December 1994.

193. *Implementation of the FAO Compliance Agreement.* In 1995, FAO sent a circular letter to all States which had accepted the Agreement informing them that it had developed a High Seas Vessel Registration Database System (HSREG) to facilitate monitoring of vessels licensed to fish on the high seas and requested States to provide data in the database. The FAO initiative was in compliance with article VI of the Compliance Agreement, which entrusted FAO with the establishment of an international database of information relating to fishing vessels entered into the record of each party which are entitled to fly its flag and authorized by it to be used for fishing on the high seas. To date, Canada, the European Community, Japan, Norway and the United States have provided vessel data to the database. Currently, information about more than 1,200 vessels has been entered in the database and work is continuing to update its content. This information will be of great value to States and regional fishery bodies and arrangements.[75]

194. As noted above, even though the Compliance Agreement has not yet entered into force, a number of States have already taken measures to ensure that they are able to exercise control over fishing activities of vessels flying their flag on the high seas, so that such vessels comply with the conservation and management measures established by RFMOs in their regulatory areas.

195. *Implementation of the FAO Code of Conduct for Responsible Fisheries and related IPOAs.* Although the Code is not a legally binding instrument, all FAO members nonetheless have undertaken a serious commitment to implement it and to act in a responsible manner, and to address urgent management and related sectoral issues. At the national level, many countries are focusing on selected key areas without losing the overall holistic perspective of the Code and several of them have stressed the need for an integrated and comprehensive approach in addressing, inter alia, capture fisheries issues. An increasing number of countries have adopted, on the basis of the Code, enabling fisheries regulations and policy measures to promote or enhance sustainable fisheries management. While some countries have adapted the Code to national or local conditions and have produced guidelines to facilitate its application, others have elaborated codes of best practices for government agencies and producers.[76]

196. In addition, several countries have developed fisheries management plans for marine fisheries, with an average of more than 60 per cent of these plans having been implemented. Such management plans contain the key fishery management tools, such as measures to: (a) ensure that the level of fishing is commensurate with the state of fishery resources; (b) prohibit destructive fishing methods; and (c) address fishing capacity, including the economic conditions under which the fishing industry operates. They have also indicated that the precautionary approach is applied continually in the provision of management advice, through attention to target reference points, implementation of objective-based fisheries management principles and reduction of quotas.[77] In small-scale fisheries, the fishing communities themselves (through participatory management) and NGOs (because of their grass-roots fisheries affiliations) are involved in facilitating and supporting the implementation of the Code.[78] NGO contributions have been through the issuance of

pertinent technical publications, translation of the Code into local languages, the conduct of workshops and seminars, and the development of a code of best practices.[79]

197. Concerning the integration of fisheries into coastal area management, findings have shown that while the legal framework for such integration exists in many developed countries, most developing countries lack a specific legal framework for this purpose. Therefore, conflicts are reported to be common in many of these countries. In this connection, conflicts between coastal and industrial fisheries, as well as between gear types operating in the coastal fisheries, are expected to be widespread and severe.[80]

198. At the regional level, intergovernmental organizations have played important roles in assisting their members in the implementation of key elements of the Code. Indeed, regional action is essential, especially where fisheries are shared, jointly exploited, or where there are problems of common concern that can be most effectively and efficiently addressed through regional activities.[81] In 1998, the first regional workshop on the adaptation of the Code was organized for 22 coastal States of West Africa (Morocco to Namibia) under the FAO Regional Programme for Integrated Development of Artisanal Fisheries (IDAF) in West Africa. Similar workshops were planned for countries of the South Pacific and the Indian Ocean.[82] Moreover, the Southeast Asian Fisheries Development Centre (SEAFDC) is reported to be working on the regionalization of several articles of the Code. SEAFDC is also producing materials for responsible fishing operations, undertaking research on juvenile and trash fish excluding devices, and has organized consultations on fishing gear selectivity. Furthermore, several RFMOs have indicated that, as a result of steps they had taken to implement substantively the Code through their members and within their areas of competence, their existing fisheries management plans or measures contained the necessary key management tools recommended in the Code.[83]

199. Pursuant to the objectives of the Code, FAO implemented in 1999 the Sustainable Fisheries Livelihoods Programme (SFLP),[84] a five-year programme funded by the United Kingdom aimed at assisting 25 participating countries of West Africa in reducing poverty in coastal and inland fisheries communities by improving the livelihoods of people dependent on fishery and aquatic resources. SFLP intended to reach its objectives through: (a) the development of social and human capital in fisheries-dependent communities; (b) the enhancement of the natural assets of those communities; and (c) the development of appropriate fisheries policy and institutional environments. The main beneficiaries of the programme would be the resource-users in artisanal fisheries communities, focusing on the most vulnerable groups: fishers and small-scale traders and fish processors, most of whom are women.

200. At the end, the programme expects to achieve a lasting impact in governance at the central and local levels, and in policy formulation and execution at both national and international levels. Sustainability within the area of government policy and planning would be improved after the successful incorporation of relevant elements of the Code into national fisheries development and management plans. Sustainability at the local level would be enhanced with local communities participating in the planning and management of the marine living resources, and with the improvement, in many areas, of livelihoods of poor people. The experience and knowledge would be disseminated elsewhere in the region and in the wider international sphere with beneficial consequences.

201. At the global level, FAO in 1998 started an interregional programme to support activities relating to the implementation of the Code (IRP-CCRF), with Norwegian funding for two subprogrammes: MCS and assistance in improving the provision of scientific advice for fishery management. As a result, a workshop on MCS was organized in Malaysia for countries covering the Bay of Bengal and South China Sea fisheries. Under the second subprogramme, assistance to the management of small pelagics was provided to Malaysia, Indonesia and Thailand, and programmes of activities were implemented for the Brazil-Guyana shrimp and groundfish fisheries, as well as for shrimp fisheries in Madagascar, Mozambique and the United Republic of Tanzania.[85]

202. Moreover, FAO has promoted the implementation of the Code by taking the following steps: (a) preparation of technical guidelines designed to provide practical direction for government officials and other stakeholders on *how* to implement it; (b) wide dissemination of information relating to responsible fisheries and its relationship to the Code; (c) provision of national advice through country visits; and (d) organization of national and regional training

workshops. Progress in implementing the Code is monitored by the biennial sessions of the FAO Committee on Fisheries (COFI) and self-assessment information provided by Governments and stakeholders is collated and analysed by FAO and in turn presented to COFI for review.[86]

203. With respect to the implementation of the IPOAs, FAO has indicated that it had requested information from Governments, international organizations and RFMOs on activities they had undertaken to implement the IPOAs, in view of the fact that each IPOA calls upon Governments to implement national plans of action to address the problems identified therein, in accordance with agreed international measures.

204. *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (IPOA-IUU). FAO has initiated a number of activities to support the implementation of the IPOA-IUU, which was adopted in March 2001. These activities include: (a) dissemination of the IPOA at international forums and meetings concerning fisheries management; (b) preparation of a technical guideline explaining, inter alia, the steps that countries should take to implement the IPOA; and (c) provision of ad hoc advice to countries on implementation of the IPOA.

205. *International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries* (IPOA-Seabirds). FAO stated that during 2001 it worked with members to promote information about the IPOA-Seabirds and to facilitate its implementation, especially in those fisheries and regions where the by-catch of seabirds in fisheries was most problematic. In addition, it has received reports from several countries indicating that the incidental catch of seabirds was not an issue for them. Other countries have reported that longline fishing was practised but that an assessment of the situation indicated that a national plan was not required. A number of other countries have undertaken an assessment and have developed or are developing or planning to develop a national plan of action. Mitigation measures already being applied by some countries to minimize the catch of seabirds include observer coverage on longline vessels, the use of tori-streamers and other bird-scaring devices, night setting, the strategic dumping of offal, the use of fully thawed baits, removal of hooks from discarded offal, and mandatory handling and release of birds that come on board alive.

206. In this respect, particular reference should be made to CCAMLR, which has effectively pioneered a set of measures on the reduction of incidental mortality in longline fisheries and has requested its members to elaborate and implement national plans. Similarly, CCSBT and the International Pacific Halibut Commission (IPHC) require their members to use devices and fishing techniques to minimize the incidental taking of seabirds. NAFO has also endorsed IPOA-Seabirds.

207. *International Plan of Action for the Conservation and Management of Sharks* (IPOA-Sharks). FAO indicated that it had prepared technical guidelines to implement the IPOA and support the development of national plans of action.[87] In 2001 a first assessment of the status of shark stocks was conducted by a number of countries. Several other countries reported that they had completed their national shark plans in 2001. IPOA-Sharks has also been addressed by the Inter-American Tropical Tuna Commission (I-ATTC) in the purse seine fisheries for tuna, while ICCAT has started an assessment of pelagic sharks in its convention area.[88]

208. *International Plan of Action for the Management of Fishing Capacity* (IPOA-Capacity). FAO has developed two sets of technical guidelines in support of the IPOA on the management of capacity, one dealing specifically with the management of fishing capacity and the other on the measurement of fishing capacity.[89] In addition, in 2001, a number of countries began a preliminary assessment of their national fishing capacity.[90] The analytical methods used included assessments of fishing permits and licences, selected analyses of capacity utilization, development of indicators of excess capacity, and data envelopment analysis.

209. In their effort to maintain or reduce capacity, some countries reported the use of the following management methods: the application of individual transferable quotas (ITQs), the use of restrictive entry, vessel and permit buy-out, the scrapping of a specified percentage of large-scale tuna long-line fishing vessels, prohibition of the use of subsidies to increase capacity and the determination of fishing capacity requirements by the fishing industry itself in the light of their quota holdings. IPOA-Capacity is also being addressed by I-ATTC, the International Baltic Sea Fishery Commission (IBSFC), ICCAT, IPHC and CCSBT, SEAFDC, the Subregional Commission on Fisheries

(CSRP) and has been endorsed by the North Atlantic Salmon Conservation Organization (NASCO).

210. As a preliminary assessment, it is reasonable to conclude that efforts seem to be made by States, intergovernmental organizations, RFMOs and NGOs to implement the Code of Conduct for Responsible Fisheries and its related IPOAs. However, a number of developing countries have identified, as major constraints, inadequate institutional and technical capacity; inadequate funding; lack of information and inadequate access to information, as well as inadequate participation of all stakeholders; inappropriate legislative framework; socio-economic implications of reducing fishing effort; and difficulties of implementing such concepts as the precautionary approach in the context of reduced human and financial resources.[91]

211. In addition, NGOs have pointed to various constraints in the implementation of the Code, such as lack of knowledge and "ownership" of the Code among fisheries authorities and fishing communities; inadequate visible support by Governments and professional associations to the application of the Code; the open characteristic of many fisheries; and insufficient information on stock status and fish habitats.[92]

212. *Implementation of the ecosystem approach to fisheries management.* Almost all international instruments adopted after the Rio Conference make reference to ecosystem-based fisheries management as a new approach which provides a more holistic and integrated view of the management of marine living resources, with the potential to complement the traditional fisheries management approach, under which each fish stock or each fish species is considered in isolation within the wider marine environment. The new approach calls for multi-species management of fish stocks, wherein the interrelationships between different stocks are accounted for in addition to each stock's internal dynamics. In addition, it recognizes that heavy fishing of target species may change the relative abundance of associated species as competitors for food, prey or predators in the marine environment. It also recognizes that because both land-based and sea-based sources of pollution can affect the productivity of fishing resources, fishery management should include not only measures to regulate fishing activities, but also measures to promote the reduction and elimination of pollution and degradation of critical habitats from non-fisheries activities in the marine environment.

213. However, due to the limited scientific understanding of the actual functioning of marine ecosystems and the lack of a scientific basis for incorporating ecosystem considerations into fisheries management, especially in many developing countries, ecosystem-based fisheries management, or, as was agreed at the Reykjavik Conference, incorporating "ecosystem considerations into fisheries management", has been the least implemented concept for fisheries management among those recommended for ocean governance at the Rio Conference. It is believed that the recent adoption of the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem could provide an impetus for the effective implementation of this important approach to fisheries conservation and management. As required, the ecosystem approach, as a cross-cutting concept, may be extended to other aspects of ocean governance in view of the multisectoral nature of marine activities, and could be the basis of a closer cooperation between RFMOs and UNEP regional seas programmes in the conservation and sustainable use of the oceans and their resources.

214. *Implementation of international instruments for the conservation and study of marine mammals. West African Cetaceans Research and Conservation Programme* (WAFCET). The Convention on the Conservation of Migratory Species of Wild Animals (CMS) secretariat undertook in 1997-1998 a first survey of the status of cetaceans in Senegal, Gambia and Guinea-Bissau, as part of a long-term international effort to stimulate broad regional involvement in research and conservation of West African cetaceans. A second phase of the programme was initiated in Senegal and Gambia in November 1999. CMS provided operating funds and equipment for the implementation of field activities in both Senegal and Gambia. These field activities revealed a previously unknown population of endangered Atlantic hump-backed dolphins, *Sousa teuszii*. A third phase of the programme was started in September 2001, focusing on the interaction of small cetaceans with fisheries in Ghana and Togo.

215. *Investigation of cetaceans in the Gulf of Tonkin.* The project, aimed at investigating the status of cetaceans in the Gulf of Tonkin and strengthening the capabilities of Chinese and Vietnamese researchers to conduct marine mammal surveys, included training,

research and awareness components. Researchers from seven scientific institutions in China and Viet Nam were trained in marine mammal research techniques in October 1999. Two surveys were conducted in the Vietnamese portion of the Gulf of Tonkin, which besides cetacean sightings included data collection of fishing vessels and interviews with fishers.

216. *Small cetaceans: distribution, migration and threats. A review.* The study was mainly aimed at providing an up-to-date and comprehensive review of available information on small cetacean migration and related conservation issues on a worldwide scale, pointing in particular to: (a) geographic areas and species for which currently available knowledge suggests the opportunity of strengthening cooperation among the range States, notably through the conclusion of new ad hoc agreements under the auspices of CMS; and (b) areas and species for which important gaps in information are evident and for which research and monitoring efforts are to be recommended as a matter of priority in order to provide the scientific/technical background for species management and, where appropriate, the conclusion of agreements under CMS.

217. *Survey for small cetaceans in the Timor Sea* (coastal waters between Indonesia and Australia). The project is being carried out by Environment Australia in collaboration with the Indonesian Central Research Institute for Fisheries. Main activities to be undertaken include the organization of a training workshop on ship-based observation, two ship-based surveys, biopsy sampling and analysis, establishment of a locational database and geographic information system (GIS), and analysis of newly gathered and bibliographic data. In addition, Philippine and Indonesian institutions, with technical and financial support from CMS, were planning to jointly implement a marine mammal survey in the Celebes Sea.

218. *Workshop for the coordination of research on and conservation of Franciscana* (Pontoporia blainvillei) *in the south-western Atlantic* (Buenos Aires, 26-28 November 1997). The workshop was co-sponsored by the CMS secretariat within its activities to promote collaborative action on the conservation of the species between the countries concerned.

219. *Workshop on the Conservation and Management of Marine Mammals in West Africa (Conakry, 8-12 May 2000).* The goal of the workshop was to develop a collaborative regional plan for conducting basic research on the local marine mammalian fauna and identifying populations in need of coordinated management efforts. The workshop was attended by governmental representatives from Benin, Côte d'Ivoire, Equatorial Guinea, the Gambia, Guinea and Senegal.

220. *Second Conference on the biology and conservation of small cetaceans in South-East Asia.* The conference is tentatively scheduled to be held in the Philippines in July 2002. The main objectives of the conference include: (a) updating the 1995 review of existing knowledge of general biology, including distribution and ecology, with emphasis on by-catch, of small cetaceans in South-East Asia; (b) updating the 1995 review of existing conservation measures and legislation at the regional and national levels; (c) identification of remaining significant gaps in scientific knowledge and assessment of the threats that must be met to ensure effective conservation; (d) development of recommendations and priorities for research and conservation action at the regional and national levels; and (e) consideration of the potential for development of formal regional cooperation, including review of a draft CMS regional agreement.

221. *Implementation of the Jakarta Mandate on Marine and Coastal Biological Diversity.* In 1998, the Fourth Meeting of the Parties to the Convention on Biological Diversity adopted decision IV/5 containing a multi-year programme of work for the conservation and sustainable use of marine and coastal biological diversity, including the consideration of the issue of coral reefs and the special needs of small island developing States.[93] In a progress report to the Fifth Meeting, the Convention secretariat indicated that the implementation of the work programme was well under way, with concrete outputs emerging from it. These include: (a) tools for assisting the implementation of the work programme (a Jakarta Mandate web site and databases); (b) methodology for ecosystem evaluation (indicators); (c) materials to guide the work of experts; (d) expert analysis of coral bleaching; (e) an information document on marine and coastal genetic resources; and (f) a review of instruments related to integrated marine and coastal area management, marine and coastal protected areas, and marine and coastal alien species and genotypes.[94]

222. In its decision V/3, the Fifth Meeting of the Parties to the Convention on Biological Diversity encouraged the Convention secretariat and SBSTTA to

complete, as soon as possible, the implementation of decision IV/5 dealing with the programme of work on marine and coastal biodiversity. It also requested the secretariat to explore the possibility of further collaboration with the secretariats of regional seas programmes and action plans in the implementation of the Jakarta Mandate.[95] A further progress report on the implementation of the Mandate, including the outcome of the first meeting of the Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas (Leigh, New Zealand, 22-26 October 2001),[96] is expected to be submitted to the Sixth Meeting of the Parties to the Convention in April 2002.

223. *Implementation of the International Coral Reef Initiative* (ICRI).[97] Following the recommendation of the first ICRI International Workshop in 1995, seven ICRI regional workshops were held between 1995 and 1997 throughout various regions of the world designated under the UNEP regional seas programme. In 1998, the second ICRI International Workshop was held in Australia. Various countries attending the International Tropical Ecosystems Management Symposium (ITMEMS) reported that the status of coral reefs worldwide had not improved and that more urgent action was required to reverse the alarming trend in reef degradation (see the report of SOPAC in annex II to the present report). Accordingly, ITMEMS participants reaffirmed the "Call to Action" and "Framework for Action" of the first ICRI International Workshop and formulated a "Renewed Call for Action". They also added a series of urgent tasks for ICRI.

224. As to future directions for its efforts, ICRI is of the view that it should continue to focus the world's attention on the need for action, at the local, national and international levels, to protect and manage coral reefs. To this end, its key objectives would be as follows: (a) focusing global attention on the declining status of the world's coral reefs and promotion of practical solutions for immediate implementation to reverse this decline; (b) establishing operational networks at the international and regional levels to coordinate the key objectives of implementing integrated coastal management, building capacity, conducting effective research and monitoring, promoting awareness among all stakeholders and involving the private sector, especially the tourism industry; and (c) increasing the funding of regional programmes and projects through these networks to allow ICRI partners to cooperate in the conservation and sustainable development of coral reefs and related ecosystems. The success of ICRI would be measured in terms of its ability to turn the international momentum into concrete action at all levels and in all regions.

225. Ten years after Agenda 21, chapter 17, was formulated, a preliminary assessment of developments affecting the conservation and sustainable use of marine living resources and marine biodiversity indicate that a large number of international instruments, whether legally binding or voluntary, global or regional, have been adopted by the international community to further the conservation and sustainable use of these resources. They cover almost all aspects of the conservation and management of marine living resources, and in doing so they have introduced new concepts and approaches to improve such conservation and management. However, conventions, agreements, resolutions, guidelines and plans of action are only as good as they are effectively implemented, at the global, regional or national level, as appropriate. Some of these instruments are in the early phase of implementation. Implementation of others has not yet been initiated and needs more time. It is thus believed that the forthcoming World Summit on Sustainable Development does not need to adopt new international instruments to assist in the conservation and management of marine living resources; a number of international instruments are in place for these purposes. What the conference may wish to consider is to encourage the international community to pursue effective implementation of the existing international instruments.

B. Non-living marine resources

226. Non-living marine resources, in particular polymetallic nodules found on the deep seabed at a water depth of 5,000 to 20,000 feet, occupied a significant place in the deliberations at the Third United Nations Conference on the Law of the Sea. In 1970, the General Assembly declared that the area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind. UNCLOS in its article 136 reconfirmed the concept, and in article 140 stipulated that activities in the international seabed area beyond national jurisdiction (the Area) shall be carried out for the benefit of

mankind as a whole, and provided for the equitable sharing of financial and other economic benefits derived from such activities.

227. Today, 20 years after the adoption of the Convention, exploration contracts for polymetallic nodules in the international seabed area have been issued to six pioneer investors, and a seventh contract will be forthcoming. Consideration is also being given to regulations for the exploration and exploitation of polymetallic sulphides and cobalt-rich crusts, two other types of minerals to be found in the Area. Within national jurisdiction, two contracts for exploration for polymetallic sulphides have been issued by the Government of Papua New Guinea.

228. Also, within national jurisdiction, the offshore oil and gas industry has been growing at a remarkable pace during the past 20 years. Gold, tin, diamonds, and sand and gravel are important offshore mineral industries within national jurisdiction.

229. *Offshore oil and gas.* Offshore oil production worldwide grew from about 13,500 million barrels per day in the early 1980s to about 18,600 million barrels per day in the mid-1990s, an increase of 37 per cent. Offshore oil production accounted for about 30 per cent of world oil production in the mid-1990s, as opposed to only 25 per cent in the early 1980s. In the same period, offshore gas production worldwide grew from about 28,300 to 35,900 million cubic feet per day, an increase of 27 per cent. Due to the same rate of growth of the on-land gas industry, the share of the offshore gas industry remained more or less the same during the period, at about half."[98]

230. With the increasing demand for oil and gas, offshore exploration and development have been shifting to the frontiers in remote and difficult places where little search and discovery activities have taken place in the past, into the deepwater provinces and selected areas where salt strata once obscured what lay beneath them. The four regions of greatest recent activity are the Gulf of Mexico, the North Sea, and offshore West Africa and South-East Asia.

231. The movement of the offshore oil and gas industry to deeper waters was characterized, inter alia, by the new record reached in 2001 in water depth for exploration, 9,743 feet. This record in the Gulf of Mexico surpassed the previous depth of 9,157 feet offshore Gabon, earlier in 2001.

232. Environmental considerations relating to offshore oil and gas exploration and exploitation and to the installations used for the industry are discussed in paragraphs 402 to 406. It is commonly held that environmental considerations can be dealt with at the national level, and under certain circumstances at the regional level; there are currently no global regulations.

233. *Methane hydrates.* Research interest is being directed towards the recovery of methane hydrates, i.e., frozen compounds of methane gas. Vast deposits are held at high pressure 600 to 1,500 feet below the ocean floor on continental margins throughout the world. Scientists have estimated that the amount of organic carbon bound up in ocean-floor methane hydrates is twice that found in all recoverable and non-recoverable oil, gas and coal deposits on earth.

234. The International Committee on Maritime Hydrates held its first workshop in Honolulu in March 2001. The primary objective of the workshop was to develop a road map for international collaboration on methane hydrates research and development. Representatives from government agencies, academia and industry in the United States, Canada, Japan, India, Norway, the Republic of Korea, Russia and the United Kingdom, were among the attendees. At the national level, at the United States Congressional hearings in July 2001, the Methane Hydrates Research and Development Act of 2000 (Public Law 106-193) was considered to be "a good first step that should prove very beneficial now and in the years to come for evaluating investments in the [United States] ocean and energy future".[99]

235. *Sand and gravel.* Sand and gravel extraction continued to be a major marine mineral industry. The issue of climate change and sea level rise "has increased the concerns of many island countries that their coastlines may be at risk and new sites for sand resources offshore are being sought".[100] SOPAC has been active in this effort. At the same time, SOPAC is studying the potential environmental effects of marine mineral development in the Pacific islands.

236. *Freshwater.* In view of the urgency that about two thirds of the world's population is projected to face shortages of clean freshwater over the coming decades, tapping the world's seas to produce freshwater is gaining momentum. According to IAEA, nuclear desalination is a promising technology.[101] The

technology of desalination, or desalting seawater, is not new. Over the past 50 years, its use has grown, particularly in the Middle East and North Africa, where freshwater is scarce. The facilities are energy-intensive and usually draw energy they need from conventional fossil-fuelled plants. However, with growing environmental concern over greenhouse gas emissions, other cleaner sources of energy are being sought. The technology of coupling nuclear energy and desalination plants already has taken hold in Japan and Kazakhstan, where commercial facilities have been operating since the 1970s. India is seeking to expand the base of national and international experience through a demonstration plant it is building in the south-east of the country, by coupling a nuclear power plant to a desalination facility, working through international cooperation projects supported by IAEA. Other countries involved in nuclear desalination projects include the Republic of Korea, the Russian Federation, Pakistan, the Islamic Republic of Iran, Egypt, Saudi Arabia, Indonesia, Morocco, Tunisia, Argentina, Canada, France and China. In 2002, IAEA is planning an international symposium to review and update the global status of nuclear desalination. As more experience is gained and shared, the technology's use could help more countries meet rising demands for electricity and for freshwater.

237. *Deep-sea minerals within national jurisdiction.* With respect to polymetallic sulphides, in addition to Nautilus Minerals of Australia working in the maritime zone of Papua New Guinea (see A/56/58, para. 316), a United States industrial corporation, Deep Sea Minerals, has been active on a global basis.[102]

238. Work on the Norway-Cook Islands joint initiative in polymetallic nodules offshore Cook Islands (see A/56/58, para. 315) appears to be in abeyance. A business case study was carried out under phase I of the project to determine the economic viability of mining the nodule deposits and evaluated the need to build up support institutions, formulate law and regulations, and study the environmental impacts of mining. After the completion of phase I, a review was made of the findings; no further plans are under way for the time being.

239. *Deep-sea minerals in the international seabed area and the work of the International Seabed Authority.* The issuance of six contracts for exploration for polymetallic nodules in the international seabed area and the consideration of issues relating to regulations for prospecting and exploration for polymetallic sulphides and cobalt-rich crusts were mentioned above. The latter was initiated during the seventh session of the International Seabed Authority held in Kingston, Jamaica, from 2 to 13 July 2001. (For details about the issuance of contracts and the work of the Authority during the seventh session, see A/56/58/Add.1, paras. 74-77.)

240. There is a growing emphasis in the work of the Authority on the environmental considerations relating to the exploration and exploitation of minerals in the Area. Details of such considerations and the work of the Authority in this context are discussed in paragraphs 415 to 417.

241. Further work of the Authority includes the development of a central data repository relating to marine resources and the marine environment, the review and evaluation of additional data for the reserved areas for the Authority for polymetallic nodules, and the investigation of a geological model of the Clarion-Clipperton Zone, the area where the six contract-holders will carry out exploration for polymetallic nodules.

242. In its contribution to the present report, ECLAC stated that as a follow-up to a document issued during the previous biennium, a new document on the work of the Authority was prepared. It deals with the provisions of the Mining Code, highlighting certain issues deserving special attention from a regional standpoint, especially that of the ECLAC region.

C. Sustainable development of small island developing States

243. The sustainable development of small island developing States, especially in their efforts towards the alleviation and eradication of poverty, is intrinsically linked with the sustainable development and protection and preservation of the oceans and seas. Agenda 21 highlights that, for small island developing States, the ocean and coastal environment is of strategic importance and constitutes a valuable development resource.[103]

244. The characteristics that highlight the economic vulnerabilities and environmental fragility of small island developing States are widely accepted. In recognition of this, specific provisions catering to the special geographic characteristics and vulnerabilities of

small island developing States are entrenched in UNCLOS and other international legal instruments in Agenda 21, chapter 17, and other major non-binding instruments.[104]

245. The two resolutions adopted by the General Assembly at its fifty-sixth session (resolutions 56/12 and 56/13) under the agenda item "Oceans and the law of the sea" contained relevant paragraphs that are specific to small island developing States in their application.

246. Currently 34 of the 41 small island developing States (for a list of those States, see A/56/58, annex VI) have ratified UNCLOS with three signatories.[105] A further 21 ratifications by small island developing States of the Agreement on Part XI of UNCLOS have been registered.[106] Of the current total of 30 ratifications of the 1995 Fish Stocks Agreement, 14 are small island States.

247. The creation of exclusive economic zones and the rights and obligations attached to their management has been a major factor for small island developing States becoming parties to UNCLOS. With their comparatively smaller land mass and consequentially severely limited land resources, small island developing States enjoy sovereign rights to exploit and manage marine resources in their respective exclusive economic zones in accordance with the provisions of UNCLOS. For many small island developing States, this UNCLOS development opened the way for economic opportunities. The adoption of the UNCLOS provisions concerning archipelagic baselines[107] meant that archipelagic States could potentially exercise jurisdiction over large ocean spaces. As a result the jurisdiction of small island developing States in the South Pacific region, for example, covers some 30 million square kilometres,[108] leading regional experts to conclude that perhaps the most suitable label for the region may be "large ocean developing States".

248. Delineation of the various maritime boundaries and zones in accordance with UNCLOS is an important requirement under the Convention, as such zones and boundaries relate to legal jurisdiction and rights and obligations of UNCLOS parties. Implementation of these provisions of UNCLOS, however, requires survey and monitoring technologies, and access to such high technology to allow small island developing States to implement these UNCLOS provisions needs to be addressed.

249. The limited resources and lack of technical capacity and know-how, coupled with limited financial resources and technological capability and other inherent disadvantages of small island developing States, including remoteness in many cases continue to pose challenges in their efforts to explore and exploit marine resources and thus to fully implement UNCLOS.

250. UNCLOS further provides procedures by which continental shelves beyond 200 nautical miles can be claimed. The number of small island developing States that may make submissions under the procedures set forth in UNCLOS is not expected to be large. However, this highly technical area calls for a coordinated approach from the international community. It should be noted that a Trust Fund to assist developing States, in particular small island developing States, has been established. Small island developing States may benefit from assistance from the Fund.

251. Small island developing States continue to attach great importance to issues concerning the conservation, protection and preservation of coastal and marine resources and the overall health of the marine environment. Flowing from the general obligations that States have to protect and preserve the marine environment, UNCED and its Agenda 21 set out the guidelines for the sustainable development of the world's marine resources. Chapter 17 addressed the issue of the protection of the oceans, and chapter 17.G addressed the issue of small island developing States. Agenda 21 recognized small island developing States as a "special case", for both environment and development. Their small size, limited resources, geographic dispersion and isolation from markets and unique vulnerabilities place them at a disadvantage economically and prevent economies of scale.

252. The Global Conference on the Sustainable Development of Small Island Developing States and its primary outcome, the Programme of Action for the Sustainable Development of Small Island Developing States[109] (Barbados Programme of Action) which was adopted at the Conference continues to serve as the blueprint for the sustainable development of small island developing States. Part IV, "Coastal and marine resources", of the Barbados Programme of Action sets out the basis for action to be taken and policies to be adopted at the national, regional and international levels. Although the Barbados Programme of Action is a non-binding document, it should be noted that with

regard to the actions called for at the international level, its contents are in conformity with the general obligations outlined in UNCLOS as they apply to, in particular, global and regional cooperation in the protection and preservation of the marine environment[110] and the conservation and management of the living resources of the high seas.[111]

253. The Barbados Programme of Action underwent a review and appraisal in 1999 during the twenty-second special session of the United Nations General Assembly. Coastal and marine resources issues[112] were categorized under "sectoral areas requiring urgent action". Fishery activities and the sustainable development of such activities within the exclusive economic zone and areas under national jurisdiction of small island developing States was one of the issues addressed in the review and appraisal of the Barbados Programme of Action.[113]

254. Fishery activities, especially in the exclusive economic zones of small island developing States, are an important source of foreign income in many of these countries. In some, it is the only viable source of foreign income. The importance placed on the development of the fisheries capacity of small island developing States was recognized by the General Assembly in resolution 56/13. In paragraph 9 of the resolution, the Assembly invited States and international financial institutions of the United Nations system to provide assistance according to Part VII of UNCLOS including, if appropriate, the development of special financial mechanisms or instruments to assist small island developing States to enable them to develop their national capacity to exploit fishery resources, including developing their domestically flagged fishing fleets, value-added processing and expansion of their economic base in the fishing industry, consistent with the duty to ensure the proper conservation and management of these fisheries resources.

255. Small island developing States continue to strengthen their regional fisheries management bodies. In the South Pacific, following the adoption of the Convention on the Conservation and Management of Highly Migratory Fisheries Stocks in the Western and Central Pacific (WCPC), signatories to WCPC convened in Christchurch, New Zealand, from 23 to 28 April 2001 for the first meeting in a series of preparatory conferences to undertake preliminary work that the new Tuna Commission established by WCPC will be required to assume upon entry into force. The second in this series of meetings will be held in Madang, Papua New Guinea, from 21 to 25 February 2002.

256. In the Caribbean, the CARICOM Regional Fisheries Mechanism (CRFM) is a recent initiative that replaces the CARICOM Fisheries Resources Assessment and Management Programme (CFRAMP),[114] a 12-year programme that commenced in 1991. The CRFM objectives include the consolidation and enhancement of regional cooperation and the promotion of sustainable fisheries management in the region, which requires a broad-based multidisciplinary approach.

257. The strengthening of national, subregional and regional capacity for negotiating fishing agreements was one of the issues which was identified during the review and appraisal of the Barbados Programme of Action as needing support from the international community. Such support to address this issue is built on the premise of a strong and committed partnership between small island developing States and the international community, one that was reiterated during the review of the Barbados Programme of Action. In the context of treaty negotiations, Pacific small island developing States have been involved in negotiations for the renewal of the multilateral treaty between the United States and the 16 Pacific Islands Forum States.[115] Forum Fisheries Agency (FFA) members, which include 14 small island developing States, met with the United States in Apia, Samoa, from 26 to 29 March 2001 to commence formal negotiations on the extension of the Treaty on Fisheries between Certain Pacific Island States and the United States of America. The Treaty currently provides a framework for access to the Western Pacific region by 50 United States purse seine vessels at a fee of US$ 18 million per annum for 10 years. The current arrangements expire on 15 June 2003.

258. The review and appraisal of the Barbados Programme of Action also identified, among other things, the need for greater regional coordination in management and monitoring, control and surveillance, including the management of straddling fish stocks and highly migratory fish stocks.[116]

259. There have been a number of recent developments that may provide assistance to small island developing States in managing their marine

ecosystems. The United Nations Foundation announced on March 2001 that it would fund a pioneering project aimed at reversing the decline of the world's coral reefs. The International Coral Reef Action Network (ICRAN), which has secured up to $10 million from the United Nations Foundation, the largest to date in the Foundation's environment portfolio, will support "flagship" coral reef management demonstration sites in four regional seas: these include regions such as the wider Caribbean and the South Pacific. It is expected that the sites within these regions will become blueprints for managing threatened coral reefs worldwide, protecting them from overfishing, pollution, oil spills and the impacts of growing coastal populations (see also para. 434).

260. The Conference of Plenipotentiaries on Specially Protected Areas and Wildlife in the Wider Caribbean (SPAW), held in Kingston from 15 to 18 January 1990, adopted the SPAW Protocol to the Cartagena Convention, which came into force on 18 June 2000. The first SPAW Meeting was convened in Havana on 24 and 25 September 2001. Reflecting the unavoidable integrated approach in dealing with oceans issues, one of the Meeting's objectives was to review the scope of the SPAW Protocol and its relationship with the work of the Convention on Biological Diversity and SBSTTA.

261. In the Pacific region, the Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (Waigani Convention) entered into force on 21 October 2001 following the tenth ratification. The Convention obligates its parties to take appropriate legal, administrative and other measures within areas under their jurisdiction to ban the import of all hazardous wastes and radioactive wastes from outside the Convention area.

262. Small island developing States have been engaged in preparation for the World Summit on Sustainable Development, to be held in Johannesburg, South Africa, from 24 August to 4 September 2002. The Pacific Subregional Preparatory Commission meeting was hosted by the South Pacific Regional Environment Programme (SPREP) in Apia, Samoa, from 5 to 7 September 2001. The Caribbean subregion met in Havana on 28 and 29 June 2001. These meetings were followed by an interregional preparatory meeting for the Summit at Singapore from 7 to 11 January 2002. A Declaration adopted at the Singapore meeting, among other things, called for the establishment or strengthening of policies and programmes to manage the ocean resources in a sustainable manner, the development of holistic island system management and ecosystem-based management approaches at the national level, and the promotion of an integrated management approach through a regional oceans and seas policy with access to appropriate technology, data management systems and related research and capacity building.

263. Furthermore, the Global Conference on Oceans and Coasts at Rio+10, held at UNESCO headquarters in Paris from 3 to 7 December 2001, made key recommendations specific to small island developing States which pointed to the need to: integrate economic, environmental, and social vulnerable factors into a vulnerability index with special applicability to small island developing States; secure greater and sustainable returns from ocean resources through improved domestic policies and legislation, improved terms of trade in ocean resources and higher levels of domestic and foreign investment; build capacity for the sound management of the exclusive economic zones of small island developing States; call for the convening of a Barbados Programme of Action+10 conference for a full and comprehensive review to focus on achievements, constraints and new initiatives necessary to significantly advance sustainable development within small island developing States.

264. The continued financial assistance through such international financial mechanisms as the Global Environment Facility (GEF) supports initiatives that have assisted small island developing States in their sustainable development programmes. The Country Dialogue Workshops programme is designed to promote country "ownership" of GEF co-financed activities, facilitate national coordination on countries' GEF programmes and enhance awareness of GEF. In 2001, Indian Ocean region workshops were held in the Comoros, Mauritius and Seychelles from 10 to 13 July and, for Pacific small island developing States, from 17 to 20 September in Apia, Samoa.

265. GEF reported that some 32 small island developing States have been participating in GEF-supported projects such as the GEF Large Marine Ecosystem projects and other international waters projects. The three regions of involvement with the

international waters projects concerning small island developing States are Africa, Asia and the Pacific, and Latin America and the Caribbean.

266. In the Pacific region, 14 small island developing States[117] are participating in the Strategic Action Programme (see annex II to the present report).

267. A recently initiated World Bank-supported project for small island developing States of the Western Indian Ocean is aimed at contributing to their capacity to address ship-related oil spills and to enhance their activities under a ship-related annex to the Nairobi Convention (the UNEP regional seas convention for the region).

268. FAO reported that it has continued to assist small island developing States in their capacity-building efforts (see para. 605). A project currently being developed by FAO under its FishCODE component, scheduled to start in early 2002, is on "Responsible Fisheries for Small Island Developing States". The aims of the project include enhancing the capabilities of fisheries administrations to improve the conservation, management, development and utilization of fisheries resources through technical assessments and the development of institutional guidelines; identifying the opportunities and formulating plans for enhancing existing fisheries industries and, where appropriate, establishing new ones; and promoting fishing fleet and shore facility privatization.

269. Climate change and its negative impacts, including sea-level rise, continue to pose great threats to small island developing States in terms of their environments, economies, livelihoods, the areas in which they may exercise sovereignty and sovereign rights, and in some cases, their very survival. In the United Nations Framework Convention on Climate Change, small island developing States are covered by the principle of "common but differentiated responsibility",[118] which is accorded to developing States under the Convention. The Marrakesh Ministerial Declaration adopted at Marrakesh, Morocco, in November 2001 at the seventh session of the Conference of the Parties to the Convention[119] stated that the Parties remained deeply concerned that all countries, particularly developing countries, including the least developed countries and small island States, face increased risk of negative impacts of climate change.

270. Capacity-building to ensure that small island developing States are able to implement UNCLOS and benefit from the sustainable development of the oceans and seas[120] remains of utmost importance to small island developing States. The UNCLOS provisions in articles 202, 203 under Part XII and the provisions on the development and transfer of marine technology under Part XIV may need to be fully implemented to enable developing States, including small island developing States, to be in a position to better perform the obligations expected of them as parties to UNCLOS.

271. For example, article 276 of UNCLOS calls for the establishment of regional marine scientific and technological research centres, particularly in developing States, in order to stimulate and advance the conduct of marine scientific research by developing States and foster the transfer of marine technology. Currently no regional centres have been established in any of the small island developing States African, Caribbean, Indian Ocean and Pacific regions. The establishment of such regional centres to perform the functions, inter alia, that are outlined in article 277 of UNCLOS may encourage and promote better implementation of UNCLOS in small island developing States regions. In many of these regions, where marine-related national capacities are limited, the establishment of such regional centres is a viable option where their collective resources and strengths can be harnessed to, in turn, assist in the strengthening and building of national capacities of small island developing States parties to UNCLOS.

272. The issue of food security is an important element in the efforts of small island developing States towards achieving sustainable development. In this context, a holistic approach taking into account the management of the ocean's resources, the impact of climate change and sea-level rise, the pollution of the coasts of small island developing States from land-based sources and other socio-economic factors needs to be promoted and strengthened.

D. Underwater cultural heritage

273. On 2 November 2001, the 31st General Conference of UNESCO adopted the *UNESCO Convention on the Protection of the Underwater Cultural Heritage* (UCH Convention) by 87 affirmative votes, 4 against and 15 abstentions. No amendments

were made to the text, which had been submitted to the Conference by the meeting of governmental experts. As a unique procedure, the President of the General Conference and the Director-General of UNESCO signed the certified copies in the six authoritative languages in lieu of signatures of member States. Member States can deposit their instrument of ratification, acceptance, approval or accession. Certain non-member States have the right to accede to the Convention (article 26, para. 2), or may be invited to do so. The new Convention, which seeks to cover "all traces of human existence having a cultural, historical or archaeological character, which have been partially or totally under water, periodically or continuously for at least 100 years",[121] will enter into force three months after the deposit of the twentieth instrument of ratification, acceptance, approval or accession.

274. Apart from restricting the activities of treasure hunters, those nations that adopt the UCH Convention will be expected to "impose sanctions for violations" which "shall be adequate in severity in securing compliance" (article 17). The instrument binds States parties to "prevent the entry into their territory, the dealing in, or the possession of, underwater cultural heritage illicitly exported and/or recovered" (article 14) and gives them power to seize such booty (article 18).

275. One of the most important features of the UCH Convention is the annex, containing the rules concerning activities directed at underwater cultural heritage, which, in accordance with article 33 of the Convention, form an integral part of it.

276. It should be noted that article 3 of the UCH Convention stipulates that "nothing in this Convention shall prejudice the rights, jurisdiction and duties of States under international law, including the United Nations Convention on the Law of the Sea. This Convention shall be interpreted and applied in the context of and in a manner consistent with international law, including the United Nations Convention on the Law of the Sea." Attention should also be drawn to article 25, paragraphs 3 to 5, on "Peaceful settlement of disputes" and the use of the mechanisms established in UNCLOS under Part XV and, for the purpose of conciliation and arbitration, under annexes V and VII of UNCLOS.

VII. Marine environment

A. Protection and preservation of the marine environment

277. In the years before the adoption of UNCLOS, a number of general multilateral agreements had been concluded to regulate specific sources of pollution, such as vessel-source pollution, dumping at sea, intervention in cases of maritime casualties and civil liability for vessel-source pollution. Ratification and enforcement of these instruments were unsatisfactory. At the same time other important problems, such as land-based sources of marine pollution and airborne pollution, were left unresolved.[122]

278. The recommendations of the United Nations Conference on the Human Environment (Stockholm, 1972) on marine pollution recognized the inadequacies of the existing regimes and underlined the need for a more comprehensive approach to the protection of the marine environment from all forms of pollution. UNCLOS provisions, in particular those contained in Part XII, represent the first attempt to create a general framework for a legal regime that establishes on a global basis the obligations, responsibilities and powers of States in all matters of marine environmental protection.[123]

279. UNCLOS creates a comprehensive, binding and directly enforceable regime for the protection and preservation of the marine environment, providing for general legal obligations coupled with a call for the development and implementation of detailed rules dealing with specific concerns. At the same time, it establishes a balance between economic development, social development and environmental protection, and in this sense foresees the concept of sustainable development. The Convention serves as a unifying framework for a growing number of more detailed international agreements on marine environmental protection and the utilization, conservation and management of marine resources. It provides for a dynamic interaction with these agreements by calling upon all States to harmonize national measures, elaborate global and regional rules, and periodically re-examine this body of law as necessary. The relationship between UNCLOS and other instruments on the protection and preservation of the marine environment is defined in article 237. The article provides that Part XII is without prejudice to the specific obligations

assumed by States under special conventions concluded previously and which may be concluded in the future, as long as those obligations are carried out in a manner consistent with the general principles and objectives of UNCLOS. The Convention has also permitted the development of non-binding instruments (soft law), such as recommended practices, guidelines and criteria, which establish benchmarks for the development of national laws and policies.

280. UNCED further developed the regime for the protection and preservation of the marine environment, building upon UNCLOS. Chapter 17 of Agenda 21 deals with "the protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources". UNCLOS and Agenda 21 are complementary to each other: UNCLOS provides the legal framework upon which chapter 17 of Agenda 21 has built a programme of action. Paragraph 17.1 of chapter 17 of Agenda 21 reaffirms that "the 1982 Convention sets forth the rights and obligations for States and provides the international basis upon which to pursue the protection and sustainable development of the marine environment and its resources".

1. Legal regime for the protection and preservation of the marine environment

281. *Definition of pollution.* UNCLOS defines pollution of the marine environment as "the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the seas, impairment of quality for use of sea water and reduction of amenities".

282. Chapter 17 of Agenda 21 introduced new terminology: the term "degradation" substituted for the term "pollution". Degradation is considered to include all deleterious effects resulting from anthropogenic modification of the physical, chemical or biological characteristics of the environment, as well as environmental impacts of technology (see A/49/631, para. 75).

283. *General obligations.* Article 192 of UNCLOS establishes that States are under an obligation to protect and preserve the marine environment. This fundamental obligation embodies a radical change from the piecemeal approach previously applied to the protection and preservation of the marine environment. Chapter 17 of Agenda 21 recognizes that in order to achieve the goal of protection and preservation of the marine environment, States have to apply preventive, precautionary and anticipatory approaches; ensure prior assessment of activities that may have significant adverse impacts upon the marine environment; integrate protection of the marine environment into relevant general environmental, social and economic development policies; develop economic incentives to apply clean technologies and other means consistent with the internalization of environmental costs, such as the polluter pays principle, so as to avoid degradation of the marine environment; and improve the living standards of coastal populations, particularly in developing countries, so as to contribute to reducing the degradation of the coastal and marine environment (para. 17.22).

284. The general obligation under UNCLOS to protect and preserve the marine environment is qualified by article 193, which provides that "States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment". The attempt to balance sovereign rights over natural resources and the duty to protect the environment is a precursor of the concept of sustainable development.

285. Moreover, the general obligation to protect and preserve the marine environment is given specific content in the other articles of Part XII. Article 194 specifies the duty of States to take all measures necessary to prevent, reduce and control the pollution of the marine environment from any source. States are required to take all necessary measures using "the best practicable means at their disposal and in accordance with their capabilities" (article 194, para. 1). This qualification can be interpreted as an early application of the concept of "common but differentiated responsibility" (Rio Declaration, principle 7), aimed at balancing the common responsibility to conserve, protect and restore the environment with the differences in economic strength and in the extent of capacity. Agenda 21 (para. 17.2) confirms that the implementation of the instrument by developing countries shall be commensurate with their

technological and financial capacities and priorities in allocating resources for development needs, and ultimately depends on capacity-building, technology transfer and financial resources.

286. The balance between the need to protect the marine environment and the need to avoid unjustifiable interference with activities carried out by other States in the exercise of their rights and duties (for example in relation to international navigation) is laid out in article 194, paragraph 4. The concept is further elaborated in Part XII, section 7, of UNCLOS, which provides a series of safeguards with respect to the exercise of enforcement powers by both port and coastal States vis-à-vis flag States (see articles 223-233).

287. Attempts to create a balance between the rights of coastal States to protect and preserve the marine environment under their jurisdiction and the rights of navigation and uses of the seas are found in various other instruments, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, and the Code of Practice on the International Transboundary Movement of Radioactive Waste.

288. The primary duties contained in article 194 provide the basis for a complex structure of rights and duties covering the control of pollution, the adoption and enforcement of laws and regulations, global and regional cooperation and assistance, monitoring and environmental assessment, notification and intervention, and State responsibility. The measures to be taken by States in order to fulfil their obligation to protect and preserve the marine environment include, inter alia, those necessary for the minimization of: the release of toxic, harmful or noxious substances from land-based sources, from or through the atmosphere or by dumping (article 194, para. 3 (a)); pollution from vessels (article 194, para. 3 (b)); pollution from installations and devices used for the exploration and exploitation of the natural resources of the seabed and subsoil (article 194, para. 3 (c)); and pollution from other installations and devices operating in the marine environment (article 194, para. 3 (d)). The measures shall also include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life (article 194, para. 5); and to prevent, reduce and control pollution of the marine environment resulting from the use of technologies or the intentional or accidental introduction of species, alien or new, into a particular part of the marine environment (article 196, para. 1).

289. Besides rules that apply to specific sources of pollution originating from activities on land and at sea, an integrated approach, viewing all sources of marine pollution as a whole, has also been developed. The duty not to transfer damage or hazards or transform one type of pollution into another, incorporated in UNCLOS by article 195, is an example.

290. Some other principles emanated from UNCED, in particular, the now widely recognized principle of the precautionary approach and the principle that polluters should bear the cost of pollution. The ecosystem approach to the sustainable use of the environment and its resources, implicit in UNCLOS, and articulated throughout Agenda 21, offers a rational basis for assessing the effects of activities on the marine environment and the way they interact with other activities.

291. *Cooperation on global and regional basis.* Article 197 of UNCLOS sets the general obligation of States to cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with the Convention.

292. Agenda 21 dedicates a programme area to "Strengthening international, including regional, cooperation and coordination". Paragraph 17.115 specifies that the role of international cooperation is to support and supplement national efforts, and that the implementation of strategies and activities under the programme areas relative to marine and coastal areas and seas requires effective institutional arrangements at the national, subregional, regional and global levels in order to ensure the effective implementation of strategies and activities. Institutions at all levels are required to improve coordination and strengthen links among them.

293. *Cooperation in notification and response measures in cases of imminent or actual danger by pollution.* The concept of cooperation under UNCLOS encompasses the duty of notification of imminent or actual danger, as well as the duty to cooperate to

eliminate the effects of pollution and prevent and minimize the damage.

294. Under article 198, when a State becomes aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution, it shall immediately notify other States it deems likely to be affected by such damage, as well as competent international organizations. Article 211, paragraph 7, provides that the international rules and standards to prevent, reduce and control pollution from vessels should include, inter alia, those relating to prompt notification to coastal States, whose coastline or related interests may be affected by incidents, including maritime casualties, which involve discharges or the probability of discharges.

295. Principle 18 of the Rio Declaration reaffirms that States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States, and that every effort shall be made by the international community to help States so afflicted.

296. Several global instruments include provisions for notification, among them MARPOL 73/78; the Oil Pollution Preparedness, Response and Cooperation Convention (OPRC Convention); the Convention on Early Notification of a Nuclear Accident; the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code); the Convention on Biological Diversity; and the International Seabed Authority Mining Code.

297. UNCLOS provisions to the effect that States shall take measures in relation to pollution from vessels, pollution from installations and devices used in the exploration or exploitation of the natural resources of the seabed and subsoil, and pollution from other installations and devices operating in the marine environment, refer, inter alia, to measures for preventing accidents and dealing with emergencies (article 194, para. 3 (b), (c), (d)). UNCLOS also provides for States to cooperate in establishing contingency plans against pollution (article 199). In particular, it requires States, in accordance with their capabilities, and the competent international organizations to cooperate in eliminating the effects of pollution and preventing or minimizing damage. To this end States are under a duty to develop and promote contingency plans for responding to pollution incidents. Article 221 reiterates the right of States to take and enforce proportionate measures beyond the territorial sea to protect their coastline, or related interests, from pollution arising after a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences (see para. 395). Article 202 (b) requests States to provide appropriate assistance, especially to developing States, for the minimization of the effects of major incidents, which may cause serious pollution of the marine environment.

298. Agenda 21 requires States to establish coordinating mechanisms for integrated management and sustainable development, which shall include contingency plans to deal with degradation and pollution of anthropogenic origin, including spills of oil and other materials (para. 17.6 (e)). States are also invited to intensify international cooperation to strengthen or establish regional oil/chemical response centres or mechanisms in cooperation with subregional, regional or global intergovernmental organizations and industry-based organizations.

299. In the field of trade and maritime transport of nuclear materials and radioactive waste, the 1993 International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code) (mandatory under SOLAS as of 1 January 2001) provides for measures on preparedness on board ships: Chapter 10, on "Shipboard emergency plan", establishes that every ship carrying INF cargo shall carry on board a shipboard emergency plan.

300. In the field of nuclear safety, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986) sets out an international framework for cooperation among States parties and with IAEA to facilitate prompt assistance and support in the event of nuclear accidents or radiological emergencies.

301. In the field of pollution from vessels,[124] the need for emergency preparedness and response to marine pollution was developed at first in relation to oil spills at sea and to the response measures needed to be implemented by land-based personnel in order to protect the coast. The 1969 International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties together with its 1973 Protocol provides that the parties to the Convention have a right

to take proportionate measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or the threat of pollution of the sea by oil, following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful consequences. The Protocol relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil was adopted in 1973 to extend the regime of the 1969 Intervention Convention to substances which are either listed in the annex to the Protocol or which have characteristics substantially similar to those substances. The list of substances included in the annex to the Protocol was updated in 1991 and 1996. The Marine Environment Protection Committee of IMO at its 47th session will consider the development of a draft amendment to the annex to the 1973 Protocol to include a simple cross-reference to the criteria and lists of chemicals included in existing instruments, in order to ensure the most expeditious means of maintaining information on chemicals covered by the Protocol.

302. In recent years the number of agreements covering measures for emergency preparedness and response has increased enormously, to cover accidents involving oil as well as other hazardous and noxious substances. The measures include those relating to preparedness on board ships and at offshore and shore-based facilities, as well as shore-based centres set up to respond to emergencies. Such instruments include OPRC, the Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances (2000) (HNS Protocol), the International Convention on Salvage, and the Draft Wreck Removal Convention (WRC).

303. At the regional level, most of the regional conventions have adopted protocols on cooperation in combating pollution from vessels in cases of emergency. Agenda 21 in paragraph 17.34 invited States to intensify international cooperation to strengthen or establish regional oil/chemical response centres and/or mechanisms in cooperation with relevant organizations. Recognizing the progress made by IMO and UNEP regional seas programmes in strengthening their collaborative approach to issues of oil-spill preparedness and response, the Fourth Global Meeting of Regional Seas Conventions and Action Plans (Montreal, November 2001) recommended that further collaboration should be developed, especially in the form of developing and amending existing relevant protocols, establishing regional activity centres, developing regional contingency plans and investing in regional training and exercises. Exploration and implementation of interlinkages with potential partners (e.g. the oil and shipping industry) was also encouraged.

304. *Integrated approach as part of cooperation at national, regional and international levels.* In the preamble to UNCLOS, the fundamental principle is laid out "that the problems of ocean space are closely interrelated and need to be considered as a whole". The comprehensive regime created under the Convention, dealing with all sources of marine pollution (article 194, para. 3), placing a duty on States to cooperate for the formulation of relevant international laws (article 197) as well as to implement them at the national level (article 194, para. 2), constitutes the basis for an integrated approach to the protection and preservation of the marine environment (see also paras. 646-675 below).

305. Chapter 17 of Agenda 21 states from the outset that the marine environment, including the oceans and all kinds of seas and adjacent coastal areas, forms an integrated whole that is an essential component of the global life-support system and a positive asset that presents opportunities for sustainable development. This requires new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels, approaches that are integrated in content and precautionary and anticipatory in nature. Programme area A of chapter 17 requests that coastal States create appropriate coordinating management mechanisms, improve their capacity to collect, analyse, assess and use information for sustainable use, including environmental impacts of activities affecting the coastal and marine areas, and underlines the role of international and regional cooperation and coordination. The provisions of Part XII of UNCLOS on global and regional cooperation, monitoring and environmental assessment as well as those on studies, research programmes and exchange of information and data provide the legal framework for States to implement such requirements.

306. *Scientific research.* In recognition of the need to gather information and data on marine pollution in order to expedite the analysis of the problem and the determination of the appropriate response measures, UNCLOS places a duty upon States to cooperate in

order to promote studies, undertake programmes of scientific research and encourage the exchange of information and data acquired about pollution of the marine environment. States are under a duty to participate actively in regional and global programmes to acquire knowledge for the assessment of the nature and extent of pollution, exposure to it, and its pathways, risks and remedies (article 200). On the basis of such data, States are under a duty to cooperate in establishing appropriate scientific criteria for the formulation and elaboration of rules, standards and recommended practices and procedures for the prevention, reduction and control of the pollution of the marine environment (article 201).

307. Agenda 21 places a great emphasis on the importance of scientific research in relation to the protection of the marine environment. To this end States are required to cooperate in the development and establishment of the necessary systematic observation, research and information management systems, regularly exchange information on marine degradation, establishing clearing-house mechanisms on marine pollution control information, and establish global profile databases providing information on the sources, types, amounts and effects of pollutants reaching the marine environment (e.g. paras. 17.13 and 17.35) (see also A/56/121, part B, paras. 161-171).

308. *Monitoring and environmental assessment.* A marine environmental assessment is a compilation of current knowledge about a defined area of the sea, an evaluation of this information in relation to agreed criteria for environmental quality and a statement of the prevailing condition of the area. Assessments should be regarded by managers and scientists as a normal part of the environmental protection process, whether at the local, national, regional or international level.[125]

309. The formal process known today as environmental impact assessment is the result of the enhanced awareness in the 1950s and 1960s that many industrial and other projects were producing undesirable effects on the environment. In response many Governments developed mechanisms to ensure that the environmental consequences of all major projects and plans were estimated before their execution was formally authorized.[126]

310. UNCLOS requires States, as far as practicable, to observe, measure, evaluate and analyse, by recognized scientific methods, the risks or effects of pollution of the marine environment, and in particular they must keep under surveillance the effects of activities under their control (both within and beyond national jurisdiction) and determine whether they are likely to pollute the marine environment (article 204). The results so obtained must be published at appropriate intervals to the competent international organization, which should make them available to States (article 205). Moreover, when States have reasonable grounds for believing that planned actions under their jurisdiction or control may cause substantial pollution or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities and report the results of such assessments (article 206).

311. The qualification "as far as practicable" included in articles 204 and 206 covers the situations in which States are not in a position to carry out assessments or monitor these activities. In order to redress this eventuality, UNCLOS provides that States shall provide advice on and assistance in developing facilities for research, monitoring, educational and other programmes (article 202, para. (a) (v)), as well as appropriate assistance, especially to developing States, concerning the preparation of environmental assessments (article 202, para. (c)).

312. Agenda 21 contains throughout chapter 17 a request that States engage in prior environmental impact assessment, systematic observation and follow-up of major projects, including the systematic incorporation of results in decision-making, ensuring prior assessment of activities that may have significant adverse impacts upon the marine environment and establishing monitoring programmes in relation to all sources of pollution. States are required to improve their capacity to collect, analyse, assess and use information for the sustainable use of resources, including on the environmental impacts of activities affecting the coastal and marine areas (para. 17.8).

313. Monitoring and environmental impact assessment requirements are provided for in most regional seas conventions, some of them (e.g. the Helsinki Convention on the Protection of the Marine Environment in the Baltic Sea Area (HELCOM Convention) and the Antarctic Treaty), are even more advanced in requiring consultations with potentially affected States. The full participation of institutions and experts from developing countries is facilitated by

the intensive training of local personnel and considerable technical assistance provided to the institutions participating in the programme.

314. It is especially important to ensure the comparability of the data generated by monitoring programmes. For this reason, UNEP has worked from the beginning to ensure that monitoring in the regional seas is based on a common methodology, which is mandatory for all participating labs. A series of publications entitled Reference Methods for Marine Pollution Studies was developed in cooperation with IOC, FAO, WHO and WMO and under the technical coordination of the IAEA Monaco Laboratory. In order to ensure the proper use of the Reference Methods and to provide a reliable basis for intercalibration exercises and quality control of data, reference materials (i.e. standards, certified reference materials, intercomparison samples and research materials) have been prepared and made available to the users of the Reference Methods. The participants in the monitoring programmes also frequently attend workshops where sampling and analytical techniques are tested and compared using a hands-on approach.

315. At the global level, a number of organizations and programmes have been monitoring the marine environment and assessing the threats to its health on a global and regional scale. One of the first organizations concerned with ocean science was the International Council for the Exploration of the Sea (ICES). Others include the IOC Marine Pollution Monitoring Pilot Programme (MAPMOPP, 1975-1980), which later evolved into the IOC Marine Pollution Monitoring Programme (MARPOLMON); the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) (for details on the work of GESAMP, in particular in relation to marine environmental assessment, see paras. 668-674 below); the Global Investigation of Pollution in the Marine Environment (GIPME), an international cooperative programme of scientific investigation focused on marine contamination and pollution; and the Global Coral Reef Monitoring Network (GCRMN), recently established by UNEP, IOC, WMO and IUCN to assess the status of and threats to coral reefs. There is also a recent initiative, the Global International Waters Assessment (GIWA), led by UNEP and funded by the Global Environment Facility, to assess the state of international waters, including marine, coastal and inland areas.

316. At its twenty-first session, held at Nairobi in February 2001, the UNEP Governing Council adopted a decision (decision 21/13) on a global assessment of the state of the marine environment, in which it requested the Executive Director of UNEP, in cooperation with IOC/UNESCO and other United Nations agencies, the secretariat of the Convention on Biological Diversity, and the regional seas programmes, to explore the feasibility of establishing a regular process for assessment of the state of the marine environment. The decision was based on a discussion paper presented by the Government of Iceland to the Governing Council at the session. In the paper it was underlined that although there was a wealth of information available about the marine environment, there was a lack of an overview, in particular on the links between the state of the marine environment and cross-cutting issues of human health, seafood safety and sustainable fisheries. Regular assessments of the impact of human activity (climate-related, pollution, physical alteration and destruction of habitats) on the state of the marine environment at the national, regional and global level were needed, in particular to inform decision makers.[127]

317. Following the adoption of the UNEP Governing Council decision, a meeting was convened in Reykjavik from 12 to 14 September 2001 to determine whether an assessment process was needed and to deliberate on related issues. During the meeting, country representatives insisted that any proposals for a new mechanism would not receive support from their Governments. It was suggested that a reformed GESAMP, provided with adequate funding, might be the best option, largely because of its strong scientific expertise.[128] The next meeting in this connection is to be held in Bremen, Germany, from 18 to 20 March 2002 (see also para. 673).

318. It is important to note in this context the launching in June 2001 of the Millennium Ecosystem Assessment, an initiative designed to improve the management of the world's natural and managed ecosystems through the gathering of policy-relevant scientific information.[129] The United Nations as well as other international agencies, scientific groups, Governments, foundations and NGOs are involved in the initiative. Coastal ecosystems and oceans were identified as components of the assessment.

319. Several agencies of the United Nations system, in particular IOC, WMO and UNEP, recognized the need

for a comprehensive, long-term, global monitoring programme to observe phenomena related to climate change and began preparations for such a programme, taking advantage of ongoing international, regional and national programmes in this area. Such programmes include: World Climate Research Programme (WCRP), including the World Ocean Circulation Experiment (WOCE) and Tropical Oceans and Global Atmosphere (TOGA); Joint Global Ocean Flux Study (JGOFS); Global Ocean Observing System (GOOS), including the Integrated Global Ocean Service System (IGOSS) and the Global Sea Level Observing System (GLOSS); and Land-Ocean Interactions in the Coastal Zone (LOICZ).

320. In 1990, the United Nations agencies submitted to experts for consideration a draft proposal for a "Long-term global monitoring system of coastal and near-shore phenomena related to global climate changes". As a follow-up, currently the integrated global observing systems, three interrelated global systems to observe the environment of the planet (GCOS, GOOS and GTOS), are being organized by United Nations organizations in cooperation with the scientific community and national Governments to become the main elements of the United Nations system-wide Earthwatch.

321. *Technical assistance.* The duty to assist developing countries in their effort to protect and preserve the marine environment is clearly spelled out under UNCLOS in Section 3 of Part XII, entitled "Technical assistance". Article 202 requires States to: (a) promote programmes of scientific, educational, technical and other assistance to developing States, which should include training of scientific and technical personnel, facilitating their participation in relevant international programmes, supplying them with the necessary equipment and facilities, enhancing their capacity to manufacture such equipment, advice on and developing facilities for research, monitoring, educational and other programmes; (b) provide appropriate assistance, especially to developing States, for the minimization of the effects of major incidents which may cause serious pollution of the marine environment; and (c) provide them with appropriate assistance concerning the preparation of environmental assessments.

322. The Convention further requests international organizations to grant preference to developing countries for the purpose of the prevention, reduction and control of pollution of the marine environment in the allocation of appropriate funds and technical assistance and in the utilization of their specialized services (article 203).

323. States are also obliged to promote international technical and scientific cooperation with regard to activities in the Area either between the parties concerned or by developing training, technical assistance and scientific cooperation programmes in marine science and technology and the protection and preservation of the marine environment (Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, annex, sect. 5, art. 1 (c)).

324. Agenda 21 underlined, throughout chapter 17, the importance of providing support especially to developing countries in relation to the protection and preservation of the marine environment. States are invited to provide access to and transfer environmentally safe technologies and methodologies (para. 17.13); coastal States are invited to promote and facilitate the organization of education and training for all interested parties, and international organizations should support them in such efforts, devoting special attention to developing countries (paras. 17.15 and 17.16); full cooperation should be extended to coastal States in their capacity-building efforts and, where appropriate, capacity-building should be included in bilateral and multilateral development cooperation (para. 17.17). States also agreed that the provision of additional financial resources, through appropriate international mechanisms, as well as access to cleaner technologies and relevant research, are necessary to support action by developing countries in relation to marine environmental protection (para. 17.23). Transfer of technology, allocation of funds for capacity-building and training programmes to ensure the full participation of developing countries in initiatives aimed at ensuring marine environmental protection from all sources of pollution are also provided for (paras. 17.35 (f), 17.37, 17.38 (f) and 17.40-17.43).

325. *Liability, compensation and sovereign immunity.* Article 235 of UNCLOS provides that States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment (it is worth noting that the provision is not limited to obligations vis-à-vis the marine environment under the jurisdiction of other

States) and that they shall be liable in accordance with international law.[130]

326. States are under a duty to ensure the availability of prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction. In order to ensure prompt and adequate compensation, States are under a duty to cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage, the settlement of related disputes and the development of criteria and procedures for payment of adequate compensation (e.g. compulsory insurance or compensation funds). In fact the Convention states that its provisions regarding responsibility and liability for damage are without prejudice to the application of existing rules and the development of further rules regarding responsibility and liability under international law (article 304).

327. Sovereign immunity is granted to warships, naval auxiliaries and other vessels or aircraft owned or operated by a State and used for government non-commercial service. However, flag States are responsible for ensuring that such vessels or aircraft act in a manner consistent with the Convention (article 236).

328. Under principle 13 of the Rio Declaration, States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

329. Examples of major specific global agreements on liability for damage to the marine environment are provided below.

330. In 1969, the International Convention on Civil Liability for Oil Pollution Damage (CLC) was adopted to deal with the civil liability of the ship or cargo owner for damage suffered as a result of a pollution casualty. The purpose of the Convention was to ensure that adequate compensation was paid to victims and the liability was placed on the shipowner.

331. The liability limits established were considered to be too low, and the compensation made available in some cases, therefore, might have proved to be inadequate. As a result, the convention establishing the International Fund for Compensation for Oil Pollution Damage (Fund Convention) was adopted. Unlike the Civil Liability Convention, which puts the onus on the shipowner, the Fund is made up of contributions from oil importers. The idea is that if an accident at sea results in pollution damage which exceeds the compensation available under the Civil Liability Convention, the Fund will be available to pay an additional amount, while the burden of compensation will be spread more evenly between shipowner and cargo interests.

332. The limits of liability in the two conventions were greatly increased through amendments adopted by a conference held in 1992, and again during the 82nd session of the Legal Committee, held from 16 to 20 October 2000 (these amendments are expected to enter into force on 1 November 2003).

333. In 1996, the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances (HNS) by Sea was adopted (not yet in force). It has generally been agreed that it would not have been possible to provide sufficient cover through shipowner liability alone for the damage that could be caused in connection with the carriage of HNS cargo (such as chemicals). Shipowner liability is therefore supplemented by the HNS Fund, financed by cargo interests.

334. IMO in its contribution to the present report stated that the one significant gap remaining in the international regime for compensating victims of oil spills from ships in accordance with article 235 of UNCLOS was addressed with the adoption by IMO of a new convention on liability and compensation for pollution from ships' bunkers. A diplomatic conference held from 19 to 23 March 2001 at IMO headquarters in London reached agreement on the details of the convention. The International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001, will establish a liability and compensation regime for spills of oil, when carried as fuel in ships' bunkers. Current regimes covering oil spills do not include bunker oil spills from vessels other than tankers.

335. The adoption of a bunkers convention completes the task initiated by the Legal Committee when it was established by IMO more than 30 years ago, namely, the adoption of a comprehensive set of unified international rules governing the award of prompt and effective compensation to all victims of ship-sourced pollution.

336. The Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal was adopted at the Fifth Conference of the Parties to the Basel Convention on 10 December 1999. The Protocol negotiations began in 1993 in response to the concerns of developing countries about their lack of funds and technologies for coping with illegal dumping or accidental spills. The objective of the Protocol is to provide for a comprehensive regime for liability as well as adequate and prompt compensation for damage resulting from the transboundary movement of hazardous wastes and other wastes, including incidents occurring because of illegal traffic in those wastes (article 1). The Fifth Conference of the Parties also adopted a decision for an interim arrangement to cover emergency situations until the Protocol enters into force.

337. Article 15 (Responsibility and liability) of the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972 London Convention) establishes that "in accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment, the Contracting Parties undertake to develop procedures regarding liability arising from the dumping or incineration at sea of wastes or other matter".

338. In September 1997, Governments took a significant step forward in improving the liability regime for nuclear damage by adopting the Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage (not yet in force) and the Convention on Supplementary Compensation for Nuclear Damage (not yet in force). The Protocol contains, inter alia, a better definition of nuclear damage (now also addressing the concept of environmental damage and preventive measures), extends the geographical scope of the Vienna Convention and extends the period during which claims may be brought for loss of life and personal injury. The Convention on Supplementary Compensation defines additional amounts to be provided through contributions by States parties on the basis of installed nuclear capacity and the United Nations rate of assessment. Taken together, the two instruments should substantially enhance the global framework for compensation well beyond that foreseen by existing conventions.

339. Before these developments occurred in 1997, the international liability regime for nuclear damage consisted of the Vienna Convention on Civil Liability for Nuclear Damage of 1963 and the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 1960 (as amended by the 1963 Brussels Supplementary Convention), linked by the Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on Civil Liability for Nuclear Damage of 1988. Under these Conventions, inter alia, liability is channelled exclusively to the operators of the nuclear installations; liability of the operator is absolute; liability is limited in amount and time; the operator must maintain insurance of other financial security for an amount corresponding to his liability; if such security is insufficient, the installation State is obliged to make up the difference up to the limit of the operator's liability. The Joint Protocol of 1988 established a link between the Conventions, combining them into one expanded liability regime.

340. In 1971, IMO, in association with the International Atomic Energy Agency and the European Nuclear Energy Agency of the Organisation for Economic Cooperation and Development, convened a conference which adopted the Convention relating to Civil Liability in the field of Maritime Carriage of Nuclear Material to regulate liability in respect of damage arising from the maritime carriage of nuclear substances.

341. *Settlement of marine environmental disputes under UNCLOS.* Under UNCLOS any dispute not settled in accordance with Article 2, paragraph 3, of the Charter of the United Nations, can be settled by recourse to the International Court of Justice, the International Tribunal for the Law of the Sea, arbitral tribunals or special arbitral tribunals (see article 287). Special arbitral tribunals may receive a submission only in relation to four categories of disputes, among them protection and preservation of the marine environment, and navigation, including pollution from vessels and by dumping.[131] The members of such

tribunals are drawn from lists of experts, maintained for each of the four fields by FAO, UNEP, IOC and IMO respectively, as opposed to being drawn from a single list of experienced persons.[132]

342. The court or tribunal, having duly received a submission, may prescribe any provisional measures which it considers appropriate under the circumstances to, inter alia, prevent serious harm to the marine environment, pending the final decision.[133]

343. The settlement of disputes mechanisms provided for in UNCLOS have the potential to play an important role in the development of international law relating to the protection and preservation of the marine environment. Such a case is already before the International Tribunal for the Law of the Sea, the *MOX Plant Case* (*Ireland v. United Kingdom*) (see paras. 557-563).

344. *Current challenges*. Significant advances have been made in the development of international rules and standards for the protection and preservation of the marine environment. However, ratification and implementation of multilateral agreements as well as implementation of soft-law instruments, need to be broader.

345. Implementation at the national level is also a key issue for reaching the goal of sustainable development of oceans and seas. Although the past decade has witnessed the development of a number of initiatives at the national level, regional differences are significant. SOPAC reported that not many States in the region have actually enacted legislation to give full effect to a number of multilateral conventions and make the provisions enforceable in national law. This is due to the limited expertise (especially in legislative drafting) and human and financial resources in the area of marine pollution and its prevention. Moreover, the prevention of pollution is not a priority on the political agenda, especially in the light of the fact that the national institutions that deal with marine matters are often a small branch of larger departments dealing with other issues.

346. As a result, ocean resources and environmental conditions are continuing to decline. The most serious threats to the marine environment worldwide have been identified by GESAMP[134] and by the Global Conference on Oceans and Coasts at Rio+10.[135] They include: (a) the destruction and alteration of habitats — at least half of the world's mangrove forests have been lost over the last century, 70 per cent of coral reefs are threatened and important seagrass habitats are rapidly being destroyed; (b) overfishing and the effects of fishing on the environment — 47 per cent of global fisheries are fully utilized and 28 per cent are overutilized, while 75 per cent require urgent management to freeze or reduce capacity; (c) the effects of sewage and chemicals on human health and the environment — while the presence in the marine environment of some pollutants has been reduced, research shows that sewage pollution has a massive effect on health worldwide and some chemicals are suspected of causing cancer, disrupting reproduction and altering behaviour; (d) increasing eutrophication — excessive growth of marine plant life is seriously disrupting ecosystems and threatening life throughout the world; (e) changes to hydrology and the flow of sediments caused by such developments as building dams and causeways, creating reservoirs, establishing large-scale irrigation schemes and changing the way land is used; (f) the introduction of alien species — it is estimated that 3,000 species of animals and plants are transported every day around the world in the ballast water of ships, or in their hulls, while other species enter the sea after being released from aquaria and fish farms; (g) climate changes — Intergovernmental Panel on Climate Change projections show that continued use of fossil fuels will exacerbate global climate changes, with severe consequences for the oceans and coastal ecosystems.

2. Prevention, reduction and control of pollution

(a) Land-based activities: the Global Programme of Action[136]

347. Land-based sources are responsible for 80 per cent of the pollution of the oceans and affect the most productive areas of the marine environment. Article 207 of UNCLOS requires States to adopt laws and regulations to prevent, reduce and control pollution from land-based sources and to endeavour to establish global and regional rules, standards and recommended practices and procedures, acting especially through competent international organizations and diplomatic conferences.

348. Two international documents were adopted by an Intergovernmental Conference in November 1995: the Washington Declaration on the Protection of the Marine Environment from Land-based Activities and

the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (A/51/116). The Global Programme of Action (GPA) addresses the impacts of land-based activities on the marine and coastal environment, including contaminants, physical alteration, point and non-point sources of pollution, and such areas of concern as critical habitats, habitats of endangered species and protection of ecosystem components such as breeding and feeding grounds.

349. In 2001, the GPA underwent its first intergovernmental review, which examined the accomplishments to date and focused on opportunities and barriers with respect to its implementation. The conclusions of the Co-Chairs of the First Intergovernmental Review on the Implementation of the Global Plan of Action for the Protection of the Marine Environment from Land-based Activities, held at Montreal, Canada, from 26 to 30 November 2001, along with the Montreal Declaration adopted by the ministerial/high-level segment of the meeting, are presented in annex I to the present report.

350. The General Assembly, in its resolution 51/189 of 16 December 1996, designated UNEP as the lead agency in the implementation of the GPA. Under the auspices of UNEP, the GPA Coordination Office was established at The Hague in 1997. The Montreal intergovernmental meeting also reviewed the work of the GPA Coordination Office and formulated a work programme for it for the period 2002-2006.

351. In 2001, among other activities, the GPA Coordination Office continued to implement the UNEP/WSSCC/WHO/Habitat Strategic Action Plan on Municipal Wastewater. A number of regional meetings were held, organized in collaboration with the regional offices and the regional seas secretariats, respectively, to consider, inter alia, the GPA Guidance on Municipal Wastewater. During 2002, the GPA Coordination Office will build upon the approach taken for municipal wastewater to develop a strategic action plan for a second pollutant source category, namely the physical alteration and destruction of habitats.

352. With the support of donors, the GPA Coordination Office will also fund projects for the development of national programmes of action for the protection of the marine environment from land-based activities in Egypt, Nigeria, Sri Lanka, the United Republic of Tanzania and Yemen during 2002. The projects strongly advocate dialogue among key stakeholders and represent a direct step towards the establishment of national capabilities and institutional strengthening.

353. As regards the specialized agencies, FAO has taken a number of initiatives to implement the GPA, including, notably, addressing the impact of coastal degradation on fishery resources.

354. GEF continues to play a vital role in funding projects in a variety of environment-related issues. An example of a GPA-related initiative is in the Black Sea region, where a GEF-funded project has been developed to address the problem of land-based nitrogen pollution leading to accelerated eutrophication. Another example of GEF activity in GPA-related matters and its marine science implications is the Baltic LME initiative, which features GEF assistance for nitrogen pollution reduction from agricultural sources consistent with Helsinki Convention obligations.

355. Furthermore, with regard to implementation of the GPA, the United Nations Industrial Development Organization (UNIDO) executes major projects addressing regional transboundary problems of large marine ecosystems and their associated river basins, wetlands and coastal zones within the International Waters focal area of the Global Environment Facility (see para. 602).

(b) Pollution by dumping; waste management

356. The relative contribution of dumping to the overall input of potential pollutants in the oceans is estimated at 10 per cent. Control of pollution of the marine environment by dumping is very much dependent on finding solutions to land-based sources of marine pollution and proper waste management in general.

357. *The legal regime*. Dumping is defined in article 1 of UNCLOS as "any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea; and any deliberate disposal of vessels, aircraft, platforms or other man-made structures at sea". States are required by article 210 to adopt national laws, regulations and measures which must be no less effective in preventing, reducing and controlling pollution by dumping than the global rules and standards to be established by States acting through competent international organizations or

diplomatic conference. Dumping within the territorial sea and the exclusive economic zone or onto the continental shelf is to be carried out only with the express prior approval of the coastal State. The obligation to enforce laws and regulations adopted in accordance with the Convention and international rules is assigned by article 216 not only to the flag State but also to the affected coastal State and the State in which the waste was loaded.

358. The global rules and standards referred to in UNCLOS are contained in the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and its 1996 Protocol. The relationship between UNCLOS and the London Convention was discussed formally by the Contracting Parties to the London Convention in 1988 and again in 1994 when they assessed the implications of the entry into force of UNCLOS for the application of the London Convention.[137]

359. In the past 20 years since the adoption of UNCLOS, and since UNCED in 1992, great progress has been made in strengthening the globally applicable rules on the dumping of wastes and other matter.[138] The most significant developments include the adoption in 1993 of amendments to the annexes to the London Convention with a view to: phasing out dumping of industrial waste; prohibiting incineration at sea of industrial waste and sewage sludge; and prohibiting the dumping of radioactive waste and other radioactive matter. Parties to the London Convention had been encouraged in Agenda 21, paragraphs 17.30 (b) and 22.5 (b), to take such measures.

360. In 1996, following a detailed article-by-article review of the London Convention, a Special Meeting of Contracting Parties adopted a Protocol to the London Convention, which will eventually replace the Convention. The Protocol represents a major change of approach from the 1972 Convention regarding how to regulate the use of the sea as a depository for waste materials. The Protocol introduces a wider definition of dumping than that contained in UNCLOS. It includes within the definition the expressions "any storage of wastes or other matter in the seabed and the subsoil thereof from vessels, aircraft, platforms or other man-made structures at sea" and "any abandonment or toppling at site of platforms or other man-made structures at sea, for the sole purpose of deliberate disposal".

361. The Protocol requires parties to apply a precautionary approach and the polluter-pays principle. The dumping of any waste except those listed in the Protocol is prohibited,[139] as is the export of wastes and other matter for the purpose of dumping at sea. The Contracting Parties to the London Convention have developed guidelines for all waste materials which may be considered for disposal at sea.

362. Issues which the Contracting Parties to the London Convention have identified as part of their future activities include the review of emerging practices regarding ocean disposal of CO_2 from fossil fuel production and use (see also A/56/58/Add.1, para. 83).

363. At the regional level, progress has been made in the harmonization of approaches regulating the disposal of wastes at sea. Specific instruments or special provisions have been adopted for the Baltic Sea region, the Black Sea, the Mediterranean Sea, the North-East Atlantic, the South-East Pacific, the South Pacific and Antarctica.

364. *Implementation and enforcement.* Only a small percentage of Contracting Parties to the London Convention have been meeting their notification and reporting requirements under article VI (4) of the Convention and have sent reports with regard to their dumping activities to the secretariat (article 9 of the 1996 Protocol contains a similar obligation to report). The Contracting Parties, noting that reporting constitutes a first step in the process which includes compliance assessment and subsequently effectiveness review, have given priority attention to developing measures for compliance promotion, including technical cooperation and assistance (see A/54/429, para. 389). The Contracting Parties approved a questionnaire on compliance issues for distribution to all Contracting Parties in 1999 and 2000 to obtain a record of the views and needs of Contracting Parties with regard to compliance; developed guidance on the implementation of the 1996 Protocol at the national level, which is aimed at States interested in becoming parties to the Protocol; and prepared a project concept document for submission to the Global Environment Facility to identify barriers to compliance with the provisions of the London Convention and the 1996 Protocol and to develop and implement solutions. In addition, one of the aims of the Long-term Strategy for Technical Cooperation and Assistance under the London Convention 1972, adopted at the most recent

Consultative Meeting of Contracting Parties in October 2001, is to assist those parties which lack the technical capacity to comply with the Convention.

365. Finally, in order to address problems of illegal dumping, the Contracting Parties are developing reporting procedures for vessels or aircraft observed to be dumping in alleged contravention of the London Convention.

366. *Waste management. Hazardous wastes.* The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal strictly regulates the transboundary movements of hazardous wastes and requires the parties to ensure that such wastes are managed and disposed of in an environmentally sound manner. The main principles of the Basel Convention are that: (a) transboundary movements of hazardous wastes should be reduced to a minimum consistent with their environmentally sound management; (b) hazardous wastes should be treated and disposed of as close as possible to their source of generation; and (c) hazardous waste generation should be reduced and minimized at source. The Convention introduced a prior informed consent regime for the import/export of hazardous wastes and their passage through third countries.

367. The Convention was amended in 1995, to provide for the prohibition of all transboundary movements of hazardous wastes destined for recycling or recovery operations from OECD to non-OECD countries, and in 1999 the Protocol on Liability and Compensation for Damage resulting from the Transboundary Movements of Hazardous Wastes and their Disposal was adopted.

368. The Basel Convention has been further elaborated at the regional level and specific regimes have been adopted for Africa, Central America, the South Pacific, the Mediterranean Sea, the Commonwealth of Independent States, the area covered by the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution, and Antarctica.

369. Recent activities under the Basel Convention have, as in the case of the London Convention, been focused on promoting the implementation of the Convention and its amendments worldwide. A 10-year Strategic Plan for the Basel Convention is being developed for approval at the Sixth Meeting of the Conference of the Parties, to be held in December 2002. The plan includes a mission statement, one overarching goal, namely the environmentally sound management of hazardous waste, and a set of operational objectives.[140]

370. *Waste management. Radioactive wastes.* The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management was adopted by IAEA in 1997 and entered into force on 18 June 2001. It is the first international instrument to address the safety of management and the storage of radioactive wastes and spent fuel in countries with or without nuclear programmes. One of its main objectives is to ensure that during all stages of spent fuel and radioactive waste management there are effective defences against potential hazards. The Convention contains requirements related to the transboundary movement of spent fuel and radioactive waste, which are based on the 1990 IAEA Code of Practice on the International Transboundary Movement of Radioactive Waste. The State of origin must ensure that it obtains the prior notification and consent of the State of destination. The Convention provides that "transboundary movement through States of transit shall be subject to those international obligations which are relevant to the particular modes of transport utilized".

371. The Convention establishes a mechanism whereby each Contracting Party is obliged to submit for review by meetings of Contracting Parties a report on the measures taken to implement each of the obligations under the Convention. This includes reporting on national inventories of radioactive wastes and spent fuel.

372. IAEA in its contribution to the present report describes the progress it has made in collecting information on all inputs of radioactive materials in the world oceans for its Clearing House on Radioactive Substances to be launched in 2002 and linked to the GPA main node. A report on accidents and losses of radioactive materials at sea was published in September 2001. The Coordinated Research Programme on Worldwide Radioactivity Studies has been completed by the IAEA Marine Environment Laboratory (IAEA-MEL) and provides the most comprehensive information on radionuclide levels in the world oceans. The results will be used as the international reference source on the average levels of anthropogenic radionuclides in the marine environment so that any further contributions from nuclear reprocessing plants, radioactive waste dumping sites,

nuclear bomb test sites and possible nuclear accidents can be identified.

(c) Pollution from vessels

373. Threats to the marine environment from shipping activities can arise from (a) accidents (e.g., groundings, spills and collisions); (b) operational discharges (i.e., oil, noxious liquid substances (chemicals), harmful substances carried in bulk, sewage, garbage as well as air emissions); and (c) physical damage to marine habitats, such as coral reefs or organisms (i.e., damage caused by anchors, ship strikes of marine mammals or the smothering of species/habitats). Normal shipping operations can also be responsible for the introduction of unwanted aquatic organisms into the marine environment. The use of toxic anti-fouling paints on ships' hulls seriously harms marine life. Damage to the marine environment can also be caused by an illegal discharge, or by an accident which happened as result of the ineffective enforcement of international safety-related rules and standards, e.g., those relating to ship construction, equipment, training of crew, etc. (see also paras. 96-97).

374. In tonnage terms, the main pollutant entering the marine environment resulting from shipping operations is oil, which is introduced predominantly as a result of routine tanker operations, such as discharges of machinery wastes and tank washings. However, currently the greatest threat to the marine environment from shipping activities arises from the introduction of harmful alien species into new environments through ships' ballast water. The Global Environment Facility has identified this as one of the four greatest threats to the world's oceans (the other three are land-based sources of marine pollution, over-exploitation of living marine resources and physical alteration/destruction of marine habitats).

375. *The legal regime in UNCLOS.* Article 194 (3) (b) of UNCLOS requires States to take measures to minimize to the fullest possible extent pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels.

376. States are required by article 211 to establish, through the competent international organization or a general diplomatic conference, international rules and standards to prevent, reduce and control pollution of the marine environment from vessels and to re-examine them from time to time as necessary. States must also promote the adoption, in the same manner, and wherever appropriate, of routeing systems designed to minimize the threat of accidents. For the flag State the global rules and standards constitute the minimum standard which it must adopt for vessels flying its flag. Coastal States can adopt stricter rules and standards than the generally accepted global standards for application in their territorial sea, so long as such standards do not apply to the design, construction, manning or equipment of foreign ships, or hamper innocent passage. In the exclusive economic zone, the generally accepted international rules and standards apply, except where the coastal State has adopted more stringent measures pursuant to article 211 (6) (for more details, see para. 389).

377. Enforcement rights regarding vessel-source pollution are set out in articles 217 to 221. The primary obligation is placed on the flag State to ensure that vessels flying its flag comply with applicable international rules and standards and with national legislation adopted in accordance with the Convention. It must prohibit its vessels from sailing until they can comply with the requirements of the international rules and standards (article 217 (2)). The duties of the flag State are set out in general terms in article 94 of the Convention (see paras 123-128).

378. A significant feature of UNCLOS is the enforcement rights it grants to both port and coastal States (discussed in detail in paras. 129-132). Section 7 of Part XII (articles 223-233) sets out a series of safeguards with regard to the exercise of enforcement powers and the institution of proceedings against foreign ships.

379. States are required by article 198 to notify affected States in the event of actual or imminent danger to the marine environment (see para. 294). They must also jointly develop and promote contingency plans for responding to marine pollution incidents (article 199) (discussed in more detail in paras. 298-303). UNCLOS furthermore requires States to ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment. The Convention in article 235 places particular emphasis on the need to develop

international law relating to responsibility and liability for damage caused by pollution of the marine environment (discussed in more detail in paras. 325-340).[141]

380. *International rules and standards governing the prevention and control of pollution from vessels.* The measures which States are required to take pursuant to article 194 (3) (b) of UNCLOS to prevent, reduce and control pollution from vessels are contained in a number of instruments. Part IV, "Shipping and navigation", of the present report describes many of the international rules and standards which have been developed in respect of all aspects of navigation, for example, ship construction and equipment, training of crew and labour conditions, transport of cargo and safety of navigation. Measures to prevent intentional as well as unintentional discharges are contained in the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). Measures for dealing with emergencies have been developed at the global and regional levels and are set out in the OPRC Convention, its 2000 Protocol and in a number of regional instruments (described in paras. 296 and 302).

381. Many of the international rules and standards for the prevention, reduction and control of pollution from vessels are contained in MARPOL 73/78, which regulates discharges from ships in six annexes: oil (annex I); noxious liquid substances (chemicals) carried in bulk (annex II); harmful substances carried by sea in packaged form (annex III); sewage (annex IV); garbage (annex V); and air pollution (annex VI). Annexes IV and VI have not yet entered into force. The use of harmful anti-fouling systems is regulated in the 2001 International Convention on the Control of Harmful Anti-fouling Systems on Ships (see para. 387).

382. IMO in its contribution to the present report states that it has decided to undertake a review of annexes I and II of MARPOL 73/78 in order to update them and also to simplify their implementation. Annex I will be restructured so that there is a complete version for each generation of tanker. The revision of annex II, which is expected to be completed by 2003, will focus on the criteria for defining pollution categories and ship types.

383. As regards annex III, it can be noted that the International Maritime Dangerous Goods (IMDG) Code, an implementation vehicle for annex III, has recently been revised and reformatted to make it more user-friendly. IMO has also decided, in principle, to make some of its chapters mandatory, aiming at an entry-into-force date of 1 January 2004.

384. Routeing systems designed to minimize the threat of accidents which might cause pollution of the marine environment, as called for in article 211 of UNCLOS, have been developed under SOLAS, the International Regulations for Preventing Collisions at Sea and the IMO General Provisions on Ships' Routeing.

385. It is important to bear in mind that the "generally accepted" or "applicable" international rules and standards which UNCLOS requires States to "conform to" and "give effect to" under article 211, and enforce under articles 217, 218, 219 and 220, can comprise international rules and standards contained in conventions, as well as those in recommendations adopted, for example, by the IMO Assembly or by MSC or MEPC. The extent to which parties to UNCLOS are required to implement and enforce those rules and standards depends on the degree of their international acceptance. Unlike the parties to the London Convention, the appropriate bodies of IMO or the parties to UNCLOS have not yet formally addressed the relationship between UNCLOS and the various instruments which regulate pollution from vessels and identified what are the "generally accepted" or "applicable" international rules and standards.[142] It may be noted that some of the more recent instruments do include a reference to a specific article in UNCLOS. In 1997, a study on the implications of the entry into force of UNCLOS for IMO was prepared by the IMO secretariat in consultation with the Division for Ocean Affairs and the Law of the Sea, pursuant to a request of the IMO Council and the General Assembly.[143] The IMO Council took note of the study and recommended that the various organs and bodies of IMO should keep the study in mind as a reference document in the context of their work.

386. Over the past 20 years since the adoption of UNCLOS, significant progress has been made in developing the measures called for in article 194 (3) (b), the international rules and standards required by article 211, and in implementing a number of the specific measures which were identified by UNCED in

Agenda 21, chapter 17, paragraph 17.30 (a), and at the fourth session of the Commission on Sustainable Development, the nineteenth special session of the General Assembly, to review and appraise the implementation of Agenda 21 (Earth Summit+5), and the seventh session of the Commission on Sustainable Development, as necessary for the prevention, reduction and control of the degradation of the marine environment from shipping. Apart from the safety-related measures, including routeing measures, which are presented in part IV of the present report, the following recent regulatory developments can be highlighted.

387. *Organotin compounds used in anti-fouling paints.* UNCED in Agenda 21, chapter 17, paragraph 17.32, had requested States to take measures to reduce pollution caused by organotin compounds used in anti-fouling paints (see also Commission on Sustainable Development decision 7/1, para. 35 (f)).[144] In October 2001, IMO adopted the International Convention on the Control of Harmful Anti-fouling Systems on Ships. In its contribution to the present report, IMO explained that the Convention sets 1 January 2003 as the date from when the ban on the application of organotin-based anti-fouling systems on all ships will come into effect, and 1 January 2008 as the date commencing on which ships, with some exceptions, will not be allowed to bear such systems, or will need to have their existing organotin-based anti-fouling system coated over to prevent it from leaching out. The Convention not only bans the use of organotin-based anti-fouling systems, but also provides a mechanism through which other harmful anti-fouling systems may be banned or regulated in the future.

388. *Harmful aquatic organisms in ballast water.* The development of requisite measures to address the spread of non-indigenous organisms through ballast water discharge, as required in article 196 of UNCLOS (see also para. 440) and recommended by UNCED in chapter 17, paragraph 17.30 (a) (vi), and by the Commission on Sustainable Development in its decision 7/1, paragraph 35 (e)[145] has proved a challenging task. Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens were adopted by the IMO Assembly in 1997, but mandatory regulations have been under development since 1994. The task of determining acceptable standards for the effectiveness of ballast water treatment and determining treatment options which meet the "agreed" criteria of ship safety, environmental acceptability and cost-effectiveness, has proved to be very complex because of the enormous engineering and scientific difficulties involved.[146] IMO is developing the legal instrument on the basis of a two-tier approach: (a) mandatory requirements applicable to all ships; and (b) special requirements applicable in certain areas. A Diplomatic Conference to adopt the new instrument is tentatively planned for the biennium 2002-2003.

389. *Protection of special areas and particularly sensitive sea areas.* In addition to international rules and standards regulating operational discharge which are applicable in all maritime areas, IMO has established more stringent discharge requirements for application only in "special areas" designated under MARPOL 73/78, or as a protective measure for particularly sensitive sea areas (PSSAs), or as a measure for a clearly defined area of the exclusive economic zone pursuant to article 211 (6) of UNCLOS. The measures which can be adopted for a PSSA or for a clearly defined area of the exclusive economic zone are not restricted to discharge requirements, but can also include navigational measures (for details see paras. 472-485).

390. *Implementation and enforcement.* Over the past 20 years since the adoption of UNCLOS, significant progress has been made in developing the legal regime for the prevention, reduction and control of pollution from vessels. Moreover, many of the instruments which set out the applicable regime have been widely ratified.

391. However, some States have experienced problems incorporating what constitutes a significant body of law into their national legislation, because of, inter alia, limited experience in the area of marine pollution and its prevention and/or little or no experience with legislative drafting in this area (see the SOPAC contribution in annex II to the present report). Other problems of implementation experienced by States relate to difficulties in meeting the obligation in MARPOL 73/78 to provide adequate reception facilities for dirty ballast water, cargo residues and garbage for ships calling at their ports (see paras. 397-401).

392. Since 1992, IMO has provided technical assistance to 77 member States on safety and pollution matters through its Technical Assistance Programme,

which has as one of its main objectives to facilitate ratification and implementation of the appropriate maritime legislation.

393. Other measures adopted by IMO to enhance the implementation of international rules and standards have been aimed predominantly at strengthening flag State implementation, in recognition of its central responsibility for the prevention of pollution from vessels, e.g., the International Safety Management (ISM) Code, and the introduction of procedures for the self-assessment by flag States of their performance (for a detailed description of all issues relating to flag State implementation, see paras. 123-128).

394. *Enforcement by port States and coastal States.* While recognizing that the primary responsibility for implementing the international rules and standards rests with the flag State, both UNCLOS and the main IMO instruments do not leave compliance enforcement to the flag State alone. UNCLOS grants States jurisdictional powers over foreign vessels voluntarily in their ports in connection with the implementation of international rules and standards. Article 218 provides measures port States can take with respect to a vessel in the event of a discharge committed in violation of international rules and standards on the high seas, or in the internal waters, territorial sea or exclusive economic zone of another State, if requested by that State, or if the violation has caused or is likely to cause pollution in its own internal waters, territorial sea or exclusive economic zone. Article 219 provides measures a port State can take if a vessel is in violation of applicable international rules and standards relating to seaworthiness. The latter provision can be considered together with the IMO regulations relating to the exercise of port State control. SOLAS, the Load Line Convention and MARPOL 73/78 provide for the exercise of port State jurisdiction for the purpose of correcting deficiencies in the implementation of applicable standards for maritime safety and pollution prevention (for further details, see paras. 129-132).

395. Several provisions in UNCLOS, in particular article 220, regulate the enforcement measures which a coastal State can take with respect to a vessel which has violated its laws and regulations adopted in accordance with the Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels. The enforcement rights of the coastal State differ according to where the violation took place and the degree of pollution caused or threatened. Article 221 gives States enforcement rights beyond the territorial sea to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty or acts relating to such casualty, which may reasonably be expected to result in major harmful consequences. This provision echoes the main features of the right of intervention by coastal States regulated in the 1969 Intervention Convention and its 1973 Protocol (for further details on this Convention, see para. 301).

396. However, many coastal States are unable to exercise their enforcement rights, since they have limited enforcement capacity and therefore find it difficult to undertake effective monitoring and surveillance operations to control marine pollution from ships. Some States have therefore entered into cooperative enforcement arrangements with other States, as also called for in Agenda 21, chapter 17, paragraph 17.30 (a) (iii).

397. *Facilities in ports for the reception of wastes from ships.* All Parties to MARPOL 73/78 are obliged to provide adequate reception facilities for ships calling at their ports. This requirement is especially necessary in "special areas" where, because of the vulnerability of these areas to pollution, more stringent discharge restrictions have been imposed. These reception facilities should, in each case, be "adequate" for the reception of wastes from ships without causing undue delay to the ships using them.

398. UNCED in Agenda 21, chapter 17, paragraph 17.30 (d), had called upon States to facilitate the establishment of port reception facilities for the collection of oily and chemical residues and garbage from ships, especially in MARPOL special areas, and to promote the establishment of smaller-scale facilities in marinas and fishing harbours.

399. Since 1992, IMO has developed a number of guidelines on port reception facilities. The most recent include the Comprehensive Manual on Port Reception Facilities, reissued in 1999, and the guidelines for ensuring the adequacy of reception facilities, published in 2000. IMO has also provided technical assistance to a number of countries, e.g., to States in the Gulf area and in the wider Caribbean region, with a view to bringing into effect the regions' special area status under MARPOL 73/78.

400. In spite of these efforts, progress in the provision of adequate reception facilities worldwide has not been satisfactory. It is a matter of extreme complexity, which involves the shipping industry, port operators, oil and chemical companies and Governments. It is widely recognized that, if the problem is to be satisfactorily resolved, it will be necessary to address the economic as well as the technical aspects of the issue.

401. Meanwhile many cruise ships' favourite destinations cannot cope with the vast amount of wastes they generate. In the light of the phenomenal growth of the cruise ship industry, the search for a solution to this problem becomes even more pressing.

(d) Pollution from seabed activities subject to national jurisdiction

402. For most States the only seabed activity currently taking place within their areas of national jurisdiction is the exploration and exploitation of offshore oil and gas, which is still predominantly concentrated in waters near the coast and on continental shelves. Different views have been expressed with regard to the level of pollution caused by the exploration and exploitation of oil and gas.[147]

403. The legal regime governing the prevention and control of pollution of the marine environment from seabed activities subject to national jurisdiction is set out in UNCLOS. Articles 208 and 214 require States to adopt and enforce national laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, pursuant to articles 60 and 80, which must be no less effective than international rules, standards and recommended practices and procedures. States are also required to endeavour to harmonize their policies at the appropriate regional level.

404. Any legislative activity that has taken place in this area since the adoption of UNCLOS has been focused only on the oil and gas industry. However, that industry has remained essentially self-regulatory. No global measures have been adopted regulating the discharges directly arising from the exploration, exploitation and associated offshore processing of oil and gas. Harmonized regulations with respect to the exploration and exploitation of oil and gas have been developed in four regions: the Baltic Sea area, the Mediterranean, the North-East Atlantic and in the area covered by the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution.

405. The need for global measures to address pollution from offshore oil and gas activities has been discussed in IMO and in the Commission on Sustainable Development. Views have been divided in IMO on the issue. Those in favour of international regulations or guidelines have argued that there are still many oil-producing regions which do not have the capacity to develop either national or regional standards and that some kind of international regulations or guidelines would help them. Those who have argued against global measures contend that offshore oil and gas activities only pose a threat of local pollution, which can be dealt with through national regulations or regional agreements.[148]

406. The Commission on Sustainable Development in its decision 7/1, in noting the outcome of an international expert meeting on environmental practices in offshore oil and gas activities, held in 1997 (see A/53/456, para. 258), had recommended that the primary focus of action on the environmental aspects of offshore oil and gas operations should continue to be at the national, subregional and regional levels, and noted that in support of such action, there was a need to share information on the development and application of satisfactory environmental management systems.

407. *Prevention, reduction and control of pollution of the marine environment from artificial islands, installations and structures*. Coastal States are required in articles 208 and 210 of UNCLOS to adopt and enforce national laws and regulations to prevent, reduce and control pollution of the marine environment from artificial islands, installations and structures under their jurisdiction pursuant to articles 60 and 80. Furthermore, article 194 (3) (c) of UNCLOS contains a general obligation for States to adopt measures to minimize to the fullest possible extent pollution from installations and devices used in the exploration or exploitation of the natural resources of the seabed and subsoil. The provision therefore also applies on the high seas.

408. In 1992, UNCED called upon States to assess existing regulatory measures to address discharges, emissions and safety and to assess the need for additional measures to address degradation of the

marine environment from offshore oil and gas platforms (Agenda 21, para. 17.30 (c)).

409. As noted in paragraph 404 above, measures regulating discharges from offshore installations which arise directly from oil and gas exploration and exploitation activities, such as oil in produced water, contaminated drill cuttings and production chemicals, have only been adopted in some regions. (For OSPAR's actions, see paras. 467-469.)

410. Discharges from offshore installations originating in machinery space are regulated by MARPOL 73/78, as are accidental discharges to some extent. Requirements regarding oil pollution emergency plans on installations are set out in the 1990 OPRC Convention. Regulations regarding the dumping of wastes or other matter from offshore installations are provided for in the London Convention and its 1996 Protocol. Requirements regarding safety of navigation are provided for in article 60 of UNCLOS and have been further complemented by the 1989 IMO Recommendations on Safety Zones and Safety of Navigation around Offshore Installations and Structures.

411. Developments in offshore activities over the past 30 years have produced mobile offshore craft, such as floating production, storage and offloading units, which do not easily fall within the definition of an installation or a ship, and it is therefore sometimes difficult to discern the applicable legal regime (see A/54/429, paras. 358-360). Some of the measures which have been developed by IMO in relation to the safe operation of offshore installations and structures apply generally to mobile offshore units, e.g., the 1989 Code for the Construction and Equipment of Mobile Offshore Drilling Units and the 1999 Recommendations on Training of Personnel on Mobile Offshore Units. The applicability of ILO labour standards to personnel working on offshore installations requires consideration.

412. *Removal and disposal of offshore installations and structures*. Requirements regarding the removal of abandoned or disused offshore installations or structures are addressed in UNCLOS in article 60 and, by reference, article 80. Entire removal is not specified. The Convention recognizes the need for the competent international organization to establish international standards to be taken into account by States when removing an installation or structure. Guidelines and standards for the removal of offshore installations or structures were established by the IMO Assembly in 1989 (resolution A.672 (16)).

413. If dumping at sea is considered an option for disposing of a decommissioned installation or structure, then article 210 of UNCLOS, read together with article 1 (5) (a), which defines dumping as any deliberate disposal of, inter alia, platforms or other man-made structures at sea, applies; and the coastal State is required to adopt laws and regulations to prevent, reduce and control pollution by dumping which are to be no less effective than the global rules and standards. Those global rules and standards are contained in the 1972 London Convention and its 1996 Protocol. Provisions on the removal and disposal of offshore installations are included in some regional agreements, e.g., the States in the Baltic Sea area must ensure that abandoned or disused offshore units are entirely removed and brought ashore.

(e) Pollution from activities in the Area

414. Articles 145 and 209 of UNCLOS set forth the basic framework for the protection of the marine environment from the harmful effects of exploration for and exploitation of the mineral resources of the international seabed area. Annex III to the Convention also contains relevant provisions.

415. *Mineral activities*. As the deep seabed mineral activities move from prospecting to exploration, greater attention is being paid to environmental considerations. The Regulations for Prospecting and Exploration for the Polymetallic Nodules in the Area (ISBA/6/A/18, annex) elaborate on the provisions of UNCLOS, and devote an entire part, Part V, to the protection and preservation of the marine environment. In its contribution to the present report, the International Seabed Authority states that, in 2001, the Authority's Legal and Technical Commission issued a set of recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules (ISBA/7/LTC/1/Rev.1 and Corr.1). These recommendations are designed to help contractors to fulfil their obligations under the contract as they relate to the protection of the marine environment from potential harmful effects which may arise from activities in the Area. The purpose of the recommendations is to describe the procedures to be followed in the acquisition of baseline data by

contractors, including the monitoring to be performed during or after any activities having the potential to cause serious harm to the environment, and to facilitate reporting by contractors. The recommendations are based upon the outcomes of an international workshop held by the Authority in 1998, which were then given detailed scrutiny by the Legal and Technical Commission. They represent, therefore, an analysis based on the best available scientific knowledge of the deep ocean environment and the technology to be used in exploration.

416. The International Seabed Authority also adds that one of its most important functions in the future will be to monitor the implementation of plans of work for exploration and to review the reports and other data and information submitted by contractors. In this regard, a group of scientific experts convened by the Authority in March 1999 recommended the development of a standardized system of data interpretation. To continue this task further, and with a view to preparing proposals on standardization of environmental data for consideration by the Legal and Technical Commission, the Authority convened in June 2001 the fourth in its series of international workshops on issues relating to deep seabed mining. The subject of the workshop, which was attended by a number of eminent scientists and researchers, was the standardization of data collection and evaluation from research and exploratory activities undertaken in the deep seabed, both in respect of the mineral resources and in respect of protection and preservation of the marine environment. The specific objectives of the workshop were: (a) to propose standards for the measurement of the biological, chemical, geological and physical components of the marine environment that are required to establish environmental baselines in exploration areas; (b) to recommend sampling designs for acquiring these data and for monitoring tests of mining equipment; and (c) to facilitate the conversion of data acquired by the registered pioneer investors to a common basis for comparison and for the development of a database to enable the Authority to better manage impacts from future mining for polymetallic nodules.

417. The International Seabed Authority concludes that it is clear from the discussions that took place during the above workshop as well as previous ones that considerable further research is required to bridge the gaps in current knowledge of deep ocean ecosystems to enable the Authority to effectively manage impacts from future mining.

418. *Marine scientific research. Genetic resources.* In its contribution to the present report, the International Seabed Authority points out that the Authority has an important role to play both as a global repository of data and information relating to marine resources and to the marine environment and as a catalyst for collaborative research at the international level. In July 2002, immediately prior to the opening of its eighth session, the Authority will convene a workshop which will focus on the prospects for international cooperation and collaboration in marine scientific research on the deep oceans and address critical issues for the sediment biota and biota living on polymetallic nodules in potential mining areas.

419. The subject of marine scientific research is a matter of great concern to the Authority, which has a duty under the Convention to promote and encourage the conduct of marine scientific research in the international seabed area and to coordinate and disseminate the results of such research.

420. Two of the particular issues which will need to be addressed through better coordination are the need to clarify certain aspects of the regime for marine scientific research and the question of how to deal with newly discovered genetic resources.

421. The basic principle set out in the Convention is that all States and competent international organizations have the right to conduct marine scientific research subject to the rights and duties of other States as provided for in the Convention. This broad principle is justified by the need to increase current knowledge of the marine environment and the benefit of such knowledge to mankind as a whole. In the context of the International Seabed Authority, for example, marine scientific research will be an essential tool in providing it with the information it needs to fulfil its obligations to protect and preserve the marine environment under article 145 of the Convention, as well as to provide the basic information necessary to effectively regulate prospecting, exploration and exploitation of the resources of the Area.

422. According to the Authority, the problem is that, while there is a freedom to engage in marine scientific research on the high seas and in the seabed, mineral resource prospecting and exploration in the Area are regulated through the Authority. The Convention does

not adequately distinguish between the terms "marine scientific research", "prospecting" and "exploration", nor does it make a distinction between "pure" and "applied" scientific research. (In fact, article 251 of UNCLOS provides that States shall seek to promote through competent international organizations the establishment of general criteria and guidelines to assist States in ascertaining the nature and implications of marine scientific research.) The problem becomes more acute in the case of new scientific discoveries that have been made in recent years, particularly the deep sea vents, which comprise both mineral resources (polymetallic sulphides) and genetic resources in the form of rich biological communities of unknown potential use to science. Here there is a real conflict between true marine scientific research and mineral prospecting, and the potential for multiple use conflicts between, for example, deep seabed miners, so-called bioprospectors, and the proper conservation and management of the deep ocean environment.

423. There is a close relationship between the conduct of activities relating to non-living resources, for which the Authority has responsibility, and the sustainable use of living resources of the deep ocean. Indeed, the Authority has the duty, under article 145 of the Convention, to adopt appropriate rules, regulations and procedures for the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment. Article 145 implies that protection of the environment is indeed a core concern of the Authority, to be balanced against the need to promote effective utilization of the resources of the Area. In this regard, it is therefore critical at this early stage that the various interests and agencies involved cooperate to the maximum extent possible.

424. To this end, the Authority is actively engaged in studying the need for further environmental regulation of the Area in accordance with the Convention and the Agreement on Part XI of UNCLOS and the environmental protection tools that might be available for this purpose. These studies will also examine how the Authority might give practical and meaningful effect to the environmental provisions of the Convention and the Agreement as they relate to the Area as well as the relationship between the responsibilities of the Authority and other international instruments.

(f) Other concerns

425. *Pollution from installations or devices not used in the exploration or exploitation of natural resources.* UNCLOS in its article 194 (3) (d) requires States to take the necessary measures to minimize to the fullest possible extent pollution from other installations or devices (i.e., other than those used in exploration or exploitation of the natural resources) operating in the marine environment.

426. While offshore installations and structures are most frequently associated with the offshore oil and gas industry, they are not limited to that industry alone. Past reports on oceans and the law of the sea by the Secretary-General have drawn attention to the use of offshore installations and structures for fish farming, energy production, tourism and recreation, and aerospace support (satellite launching). Their use has also been proposed for floating aerodomes for both commercial and military purposes and for offshore logistical bases (see A/53/456, para. 459 and A/54/429, paras. 556-558).

427. Under UNCLOS, a determination as to who has the responsibility for implementing article 194 (3) (d) must take into account the location of the installation or device and the purpose for which it is used. On the high seas, the State of registry has jurisdiction with regard to installations or devices, irrespective of their intended use. In the exclusive economic zone, the right of the coastal State to exercise jurisdiction depends upon the purpose of the installations or devices. UNCLOS provides that only installations and structures that serve economic purposes and which interfere with the exercise of the rights of the coastal State in the zone are subject to the authorization and jurisdiction of the coastal State (article 60 (1)). The coastal State also has jurisdiction with respect to the deployment and use in the exclusive economic zone of the scientific research installations or equipment referred to in article 258.

428. Requirements regarding the safety of navigation around artificial islands, installations or structures and on the establishment of safety zones are set out in articles 60, 260, 261 and 262 of UNCLOS. Only MARPOL 73/78, with respect to discharges, and the London Convention and its 1996 Protocol, with respect to dumping, apply generally to offshore installations and structures, and not just those relating to oil and gas activities.

429. Removal and disposal requirements with respect to offshore installations and structures are provided for, respectively, in the 1989 IMO Guidelines and Standards for the Removal of Offshore Installations or Structures on the Continental Shelf and in the Exclusive Economic Zone, and in the London Convention and its 1996 Protocol (discussed in more detail in paras. 359-363).

430. *Measures to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.* UNCLOS provides that the measures taken by States to prevent, reduce and control pollution of the marine environment shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.[149] Agenda 21 in its chapter 17 reiterates the need for these measures in paragraphs 17.46 (f) and 17.74 (f). (See also section C below, on "Protection of specific marine areas".)

431. It is important to note in this respect that UNCLOS provides for the right of coastal States to adopt and enforce non-discriminatory laws and regulations relating to pollution from vessels in ice-covered areas within the limits of the exclusive economic zone.[150]

432. A number of global instruments and programmes deal with the protection of special geographic areas, including: the International Whaling Convention;[151] the Convention on Wetlands of International Importance, especially for Waterfowl (Ramsar Convention); the Convention Concerning the Protection of the World Cultural Heritage (World Heritage Convention); the Convention on Biological Diversity; the Action Plan for Biosphere Reserves (1984) and the Seville Strategy and Statutory Framework for the World Network of Biosphere Reserves (1995) of UNESCO; and the International Coral Reef Initiative (ICRI).

433. In its contribution to the present report, the secretariat of the Ramsar Convention stated that there are currently 519 sites worldwide (of a total of 1,126) in the Ramsar List of Wetlands of International Importance which include coastal wetland types. The Ramsar Convention has recognized that some coastal wetland types are underrepresented in the list and the Contracting Parties have been urged to address this through the "Strategic framework and guidelines for the future development of the List of Wetlands of International Importance" adopted by the 7th Meeting of the Conference of the Contracting Parties in 1999. Joint actions by the Ramsar Convention and the Convention on Biological Diversity on marine and coastal biodiversity focus on marine and coastal protected areas, the development of guidance on integrated marine and coastal area management, and methodologies for the rapid assessment of marine and coastal biological diversity.

434. In its contribution to the present report, UNEP stated that the International Coral Reef Action Network (ICRAN)[152] has launched its Action Phase in June 2001. The project supports coral reef management in four regional seas programmes: the wider Caribbean, East Africa, East Asia and the South Pacific, which will become blueprints for managing threatened coral reefs worldwide. A meeting of regional seas coral reef coordinators was held in September 2001 in Bonaire, Netherlands Antilles to refine the regional seas work plans for implementing the Action Phase (see also para. 259).

435. Protection for species designated as threatened or endangered is dealt with by a number of international agreements, both global and regional. Examples of global conventions are: Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention); Convention on Biological Diversity; and, in the specific case of marine mammals, UNCLOS and the International Whaling Convention.

436. The CITES and the CMS Conventions have created lists of species (included in the annexes) threatened with extinction or under risk of becoming threatened. Several marine species are included in the lists. The same approach has been adopted by several regional conventions. IUCN also maintains a Red List of Threatened Species.

437. In its contribution to the present report, the CMS secretariat indicated that within the current CMS activities of relevance to marine mammals, several regional agreements have been developed and implemented (for details, see paras. 214-220).

438. *Use of new technologies.* Since technological developments in ocean uses could be quite rapid indeed, article 196 of UNCLOS provides for necessary measures to be taken to prevent, reduce and control

pollution of the marine environment resulting from the use of technologies.

439. *Introduction of alien or new species*. Every day, it has been estimated, 3,000 species of animals and plants are being transported around the world in the ballast water of ships, or in their hulls. Other species enter the sea after escaping or being released from aquaria and fish farms. Most alien species are introduced near coasts, and these waters are particularly vulnerable to them.[153] The invasion of alien species is ranked second to habitat loss as the major threat to biodiversity, and there is growing evidence that the rate of invasion is accelerating with the expansion of international trade.[154]

440. Article 196 of UNCLOS imposes on States the duty to take measures to combat pollution of the marine environment resulting from the intentional or accidental introduction of new or alien species which may cause significant and harmful changes thereto. This obligation was reiterated in Agenda 21, chapter 17, where it is requested that States should adopt measures in relation to pollution from shipping on ballast water discharge to prevent the spread of non-indigenous organisms (para. 17.30 (vi)).

441. The Convention on Biological Diversity recognizes that alien species pose one of the greatest threats to biodiversity, and therefore underlines the need to prevent their introduction, to control them or to eradicate them when they threaten ecosystems, habitats or species (article 8, para. h). The Biosafety Protocol to the Biodiversity Convention, by establishing a regime for the import of genetically modified organisms, also deals with the threats posed by the import and the introduction into the marine environment of genetically modified live fish.

442. Marine aquaculture is another increasingly significant activity in coastal areas. Badly managed aquaculture has destroyed key habitats such as mangrove forests and has allowed selectively bred fish to escape to open waters and interbreed with their relatives, with unknown consequences.[155] A number of instruments attempt to deal with the impact of aquaculture, inter alia: Code of Practice on the Introduction and Transfer of Marine Organisms (1994), developed by the International Council for the Exploration of the Sea; Code of Conduct on the Import and Release of Exotic Biological Control Agents (1996); Code of Conduct for Responsible Fisheries (1995), developed by FAO; and draft Guidelines for the Prevention of Biodiversity Loss due to Biological Invasion (2000), developed by IUCN.

443. In view of the severe threat posed by alien species to the ecological character of wetlands, and, if they become invasive, to both terrestrial and marine wetland species, in 1999, the 7th Meeting of the Conference of the Contracting Parties to the Ramsar Convention adopted a resolution on invasive species and wetlands (resolution VII.14), in which the Contracting Parties were requested to address the environmental, economic and social impact of invasive species on wetlands within their jurisdictions, wherever possible.

444. At the regional level, several protocols to the regional conventions have been adopted in order to deal, inter alia, with the problem of alien invasive species.

B. Regional cooperation

1. Review of UNEP regional seas programmes and action plans[156]

445. The regional approach is an extremely effective — in may cases the most effective — way to protect and preserve the marine environment. This was the basis for the development of its regional seas programme by UNEP. UNCLOS highlighted regional cooperation and chapter 17 of Agenda 21 specifically pointed to the UNEP regional seas programme as a significant activity promoting the objectives of sustainable development of the oceans and seas and their resources. The programme is based upon periodically revised action plans adopted at high-level intergovernmental meetings and implemented, in most cases, in the framework of legally binding regional seas conventions under the authority of the respective contracting parties or intergovernmental meetings.

446. Since its initiation in 1974, the regional seas programme, which is currently undergoing a revitalization, has expanded to cover the marine environment of more than 140 of the world's coastal countries.[157] It has remained the central UNEP initiative providing the major legal, administrative, substantive and financial framework for the implementation of Agenda 21 and its chapter 17 on oceans.

447. There are currently 13 regional seas conventions and/or plans of action in operation. Ten of them had been adopted prior to UNCED in 1992, and of these, six had been adopted prior to the conclusion of UNCLOS in 1982. Since UNCED, on the other hand, four regional seas conventions and action plans[158] have either been adopted or have seen the entry into force of protocols to them concerning land-based sources of pollution. In addition, four regional seas conventions[159] have been either adopted or have seen the entry into force of protocols to them dealing with specially protected areas. Another regional seas programme of action is currently being negotiated.[160]

448. The main objectives of the regional seas conventions and action plans include promotion of the integrated management and sustainable development of coastal areas and associated river basins and their living aquatic resources, promotion of the implementation of appropriate technical, institutional, administrative and legal measures for the improved protection of the coastal and marine environment, and facilitation of assessments of the coastal and marine environment, including their conditions and trends.

449. *Fourth Global Regional Seas Meeting*. Regional seas stakeholders and secretariats from around the world have met on four occasions. All four of these global regional seas meetings were held during the period since the adoption of the GPA in 1995. The Fourth Global Meeting of Regional Seas Conventions and Action Plans was held in Montreal, Canada, from 21 to 23 November 2001.

450. A number of recommendations were made at the Montreal meeting. An important outcome was the decision that the regional seas programmes should consider the necessary steps to be taken towards the adoption of an ecosystem-based management of the marine and coastal environment. In that connection, particular importance was attached to the issues of integrated coastal area management and the ecosystem-based approach to fisheries management.

451. Emphasis was also placed on the need to strengthen cooperation between regional seas programmes and the GPA, as the programmes were the principal implementation platforms for GPA projects and activities at the regional level. Such cooperation should proceed from an identification of problems and the setting of priorities by the regional seas programmes, while the GPA could serve as the principal instrument for identifying partners and donors and forming links with them.

452. The meeting recommended that the conduct of the feasibility study establishing a regular process for the assessment of the state of the marine environment mandated by the Governing Council of UNEP at its twenty-first session (see para. 316 above) should be facilitated and that the regional seas programmes should become full participants in the consultations carried out in the context of that study.

453. The Montreal meeting further agreed that oceans governance would be strengthened through the following actions, bearing in mind that regional seas conventions and action plans are the best placed platforms for promoting the protection and sustainable use of the marine and coastal environment:

(a) Because of their multisectoral nature, regional seas programmes can provide complimentary regional frameworks for the implementation of global multilateral environmental agreements and global conventions relevant to the environment, including the biodiversity-related conventions, the hazardous chemicals and wastes conventions, the GPA, the UNCED-related conventions, the IMO marine pollution conventions and protocols and UNCLOS;

(b) Horizontal cooperation among regional seas conventions and action plans on issues of common concern, including the provision of technical cooperation by the more developed regional seas programmes to those that are less developed, needs to be promoted further;

(c) Increased cooperation of the regional bodies of international organizations, including UNEP (specifically the regional seas programmes), FAO, IOC/UNESCO, IMO and IAEA, among others, is required for enhanced governance and management of the marine and coastal environment;

(d) Regional clustering of activities carried out by global multilateral environmental agreements, regional seas conventions and action plans, international organizations and other regional bodies is needed to carry out activities in a more coordinated and cost-effective manner, particularly in areas such as capacity-building, technology transfer, development of supportive national legislation, assessment and monitoring, and public awareness and information exchange;

(e) In particular, greater efforts are required to pool resources for developing collective regional technology transfer centres for the protection and sustainable use of the marine and coastal environment in support of regional seas programmes, global multilateral environmental agreements and other international initiatives.

454. The Fifth Global Meeting of Regional Seas Conventions and Action Plans is scheduled to be held in Toyama, Japan, in 2002.

455. *Implementation of UNEP regional seas programme.*[161] In the Mediterranean region, after a number of years dedicated to the assessment of marine pollution, its causes and effects, and with a view to ameliorating and completing the legal system for the protection of the marine and coastal environment, during the biennium 2000-2001 there was a shift of interest towards the issue of concrete control of pollution and enforcement of the existing legislation.

456. With regard to pollution from land-based activities, following the important initiatives of the GPA at the global level, efforts were concentrated on the formulation of an operational strategy, including practical guidelines and methodology, related to the practical implementation of the Strategic Action Programme to Address Pollution from Land-based Activities. The action programme, which was adopted in 1997 and is expected to soon become a binding legal instrument, foresees the achievement of a number of practical actions to combat pollution, and in particular the implementation and the tracking of concrete reductions of releases of industrial pollutants into the sea.

457. The system that was formulated and adopted by the countries foresees the establishment of the year 2003 as the base year for calculating the national budget of polluting releases and a series of supporting activities to ensure the implementation of the pollution reductions starting from that year. These activities include a large cooperative, multi-donor project, largely financed by GEF and the Fonds Français pour l'Environnement Mondial (FFEM) and other donors. The project, which encompasses the participation of Governments, international bodies, intergovernmental bodies and NGOs, contains a large capacity-building programme, at both the technical and managerial levels, and includes the identification of financial instruments to ensure the financial sustainability of the pollution control measures to be taken by the countries.

458. In the Red Sea and Gulf of Aden region, the Regional Organization for the Conservation of the Environment of the Red Sea and the Gulf of Aden (PERSGA) is executing the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden, which was developed over a period of three years by PERSGA and the three GEF implementing agencies, namely UNDP, UNEP and the World Bank. The implementing agencies, together with the Islamic Development Bank, have provided the necessary financial and technical support. The Strategic Action Plan provides a cooperatively developed framework for the long-term conservation and management of the coastal and marine resources of the region. A programme of activities is being carried out through six complementary components. Furthermore, PERSGA is establishing a network of marine protected areas which will serve to assist in conserving representative examples of regional biodiversity and have the potential to benefit both migratory species that require scattered habitats and transboundary or straddling stocks. In the area of training, a new training course for marine protected area managers has been prepared in association with the United Nations TRAIN-SEA-COAST programme, and the first course was delivered in January 2002. New public awareness centres have been established in several countries and provided with equipment and materials.

459. A Strategy on Biodiversity and the Establishment of Protected Areas for PERSGA and ROPME has been prepared, in cooperation with ROPME and the UNEP Regional Office for West Asia (UNEP-ROWA) and with the support of the European Commission. This has led to the drafting of a Protocol concerning the Conservation of Biological Diversity and the Establishment of Protected Areas for both the PERSGA and the ROPME regions. Furthermore, a Protocol on the Protection of the Marine Environment from Land-based Sources of Pollution in the Red Sea and Gulf of Aden has been prepared.

460. Regional capacity in marine sciences has been improved through numerous workshops and training courses, including: basic GIS, shark identification and fisheries data collection methods, principles of biodiversity conservation, standard survey methods for habitats and species, diving and environmental education.

461. After a long period of almost no activity, the UNEP Division of Environmental Conventions, Regional Seas Branch, acting as the interim Secretariat for the North-west Pacific Action Plan (NOWPAP), organized several technical meetings. The Sixth Intergovernmental Meeting (Tokyo, December 2000) decided to establish a Regional Coordinating Unit. Japan and the Republic of Korea both expressed their willingness to co-host the Regional Coordinating Unit and developed a detailed plan to co-host the NOWPAP Regional Coordinating Unit in Toyama, Japan, and Pusan, Republic of Korea, in full consultation with China, the Russian Federation, and UNEP. The Regional Coordinating Unit is expected to be established during 2002.

462. During the Tokyo meeting NOWPAP member States decided to develop a new project on the assessment and management of land-based activities within the NOWPAP programme framework. UNEP, as interim secretariat for NOWPAP, was requested to assist in further developing the GEF proposal on "Formulation of a strategic action programme for the North-west Pacific region to address pollution of the marine environment from land-based activities". The project covers the eastern half of the NOWPAP region, extending from the southern extremities to the south-westernmost Japanese islands.

463. The most recently established regional seas programme covers the North-east Pacific region. The first Intergovernmental Meeting of the Plan of Action for the Protection and Sustainable Development of the Marine and Coastal Environment of the North-east Pacific was held in Guatemala City from 19 to 22 February 2002. The Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the North-east Pacific (Antigua Convention) was signed at Antigua, Guatemala, on 18 February 2002. The Convention establishes the framework of operation of the plan of action and is the first regional seas convention since the adoption of the GPA in 1995 to integrate GPA implementation within its framework.

464. As noted above, the GEF continues to be one of the major financial mechanisms for funding specific projects under the regional seas programme. (For GEF-funded regional seas projects, see paras. 579-592.)

2. Other regions

465. *Baltic Marine Environment Protection Commission (HELCOM).* In 1974, seven Baltic coastal States signed the 1974 Baltic Sea Convention, which entered into force on 3 May 1980. In the light of the political changes and developments in international environmental and maritime law, the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), was open for signature in 1992 by all the States bordering the Baltic Sea and the European Community just prior to UNCED. The Convention, which entered into force on 17 January 2000, covers the whole of the Baltic Sea area including inland waters as well as the seabed. Measures were also taken in the whole catchment area of the Baltic Sea to reduce land-based pollution. According to article 15 (Nature conservation and biodiversity), the Contracting Parties agree to conserve natural habitats and biological diversity and to protect ecological processes.

466. A major project that was recently undertaken is the Baltic Sea Regional Project (2001-2006). Because pollution and marine life do not respect national boundaries, marine environments must be managed at a higher regional level. The project, partly funded by the Global Environment Facility (GEF), involves environmental monitoring and assessment as well as ecosystem and fisheries management. The actions involved include coordination of regional monitoring and assessment, development of ecosystem management tools for application in the whole of the Baltic marine ecosystem, management of pollution hot-spots, such as the coastal lagoons of the eastern Baltic, reduction of nutrient discharges from diffuse sources, mainly farmland, and promotion of ecological sustainability in fisheries management.

467. *OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic.* Following its ratification by seven Contracting Parties, Annex V to the OSPAR Convention came into force on 30 August 2000. This gives the Commission competence to adopt programmes and measures to control all human activities that may adversely affect the marine environment of the North-east Atlantic, except for questions relating to the management of fisheries. For questions relating to maritime transport, preference is given to action through IMO. Remaining signatories have declared their intention of ratifying the

OSPAR Convention, and by the end of 2001 a further three had done so.

468. At its annual meeting, held in Valencia, Spain, from 25 to 29 June 2001, the Commission revised its List of Chemicals for Priority Action, adopted background documents on policies for the control of a number of hazardous substances, drew the attention of the regional fisheries management authorities to the conclusions of the Quality Status Report 2000 on the need for action on certain questions, especially deep-sea fish species, and agreed on conclusions to improve cooperation with the European Community.

469. The Commission also adopted a recommendation on the management of produced water from offshore installations.

470. *Programme for the Protection of the Arctic Marine Environment (PAME).* In the 1998 Iqaluit Declaration, the Arctic Council[162] Ministers adopted the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities. The programme of action was given the following five goals: to promote public health; to reduce the degradation of the marine environment; to promote the sustainable use of marine resources; to promote biodiversity; and to provide remedies for persistent organic pollutants (POPs), heavy metals and radionuclides which present an immediate and concrete threat to the Arctic marine environment. The GPA outlines the basic principles of the Regional Programme of Action. The Regional Programme of Action builds on existing and planned activities and is intended, in part, to provide a mechanism for improving coordination among existing programmes as well as to identify additional actions needed.

471. A recent Arctic Council circumpolar overview report on biodiversity draws attention to various threats caused by human beings to nature and wildlife in the Arctic. Climate change is taking place, with strong, variable and largely unpredictable effects on nature and communities in the Arctic. The Arctic Council has launched an ambitious project to assess the environmental, social and economic consequences of climate variability and change and the effects of increased UV and UVB radiation in the Arctic. The project will pay special attention to the impacts of climate change on indigenous peoples.

C. Protection of specific marine areas

472. Marine protected areas are useful management tools which can be established for a wide variety of management objectives, such as: the protection of ecologically or biologically important areas, specific marine organisms, important geological or geomorphological processes, beautiful seascapes, cultural or historic sites, and recreation. In accordance with the provisions of UNCLOS, the measures a State may wish to adopt to protect an area and its species depend upon the activities which it seeks to regulate. Marine protected areas can range from areas of strict protection to areas zoned for multiple uses. The maintenance of networks of protected areas, rather than just individual sites, is widely supported.

473. Chapter 17 of Agenda 21 calls upon States to undertake measures to maintain biological diversity and productivity of marine species and habitats under national jurisdiction, through, inter alia, the establishment and management of protected areas (para. 17.7). The Convention on Biological Diversity requires parties to establish a system of protected areas where special measures need to be taken to conserve biological diversity and to develop guidelines for the selection, establishment and management of such areas (article 8 (a) and (b)). At its second meeting, the Conference of the Parties to the Convention on Biological Diversity endorsed marine and coastal protected areas as one of the five thematic issues and areas for action under the Jakarta Mandate on Marine and Coastal Biological Diversity.

474. The secretariat of the Convention on Biological Diversity, in its contribution to the present report, stated that at its fourth meeting, the Conference of the Parties had called for the establishment of an Ad Hoc Technical Expert Group on Marine and Coastal Protected Areas to assist the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) in its work on the topic of marine and coastal protected areas.

475. At its 1st meeting, held from 22 to 26 October 2001 in New Zealand, the Expert Group reviewed and discussed the status of marine and coastal protected areas globally; the value of marine and coastal protected areas and their effects on marine and coastal biological diversity; criteria for the selection of marine and coastal protected areas; the identification of linkages between marine protected areas and the

sustainable use of marine and coastal biodiversity; and the identification of knowledge gaps, particularly in understanding the value and effects of marine and coastal protected areas on the sustainable use of marine and coastal living resources and on population size and dynamics, and the identification of existing efforts to fill those gaps.

476. The Expert Group identified key issues for further work and will meet for a second time in May 2002 to finalize its work for further consideration at the eighth meeting of SBSTTA.

477. One key issue which was identified for future development was the concept of a comprehensive and global representative system of marine and coastal protected areas, in which the full range of marine and coastal ecosystems would be managed to maintain their structure and functioning and to provide benefits for present and future generations. The Expert Group identified marine protected areas in zones beyond national jurisdiction as an issue where there was a knowledge gap. It may be noted that when the protection of high seas areas was addressed at the seventh session of the Commission on Sustainable Development (decision 7/1), some delegations also proposed the development of a global representative system of marine protected areas within and across national jurisdictions, while others voiced a more cautious approach to the concept of marine protected areas on the high seas.

478. *Developments at the regional level.* Several regional agreements include provisions relating to the designation of marine protected areas (for details see A/56/58, paras. 404-407). UNEP, in its contribution to the present report, noted that its Mediterranean Action Plan had created the Network of Specially Protected Areas of Mediterranean Importance. The Meeting of the Contracting Parties to the Barcelona Convention brought the network into operation with the inclusion of 12 areas of outstanding importance off the coasts of Spain, France, Tunisia, together with the Sanctuary for the Conservation of Marine Mammals (Monaco, France and Italy).

479. PERSGA reported that it is establishing a network of marine protected areas that will assist in conserving representative examples of regional biodiversity and have the potential to benefit both migratory species that require scattered habitats and transboundary or straddling stocks.

480. A Strategy on Biodiversity and the Establishment of Protected Areas for PERSGA and ROPME has been prepared, in cooperation with ROPME and UNEP-ROWA and with the support of the European Commission, which in turn has led to the drafting of a Protocol concerning the Conservation of Biological Diversity and the Establishment of Protected Areas for both the PERSGA and the ROPME regions.

481. *Measures to protect specific marine areas from shipping activities.* The provisions of UNCLOS relating to the prevention, reduction and control of pollution of the marine environment from vessels strike a crucial balance between the measures which coastal States can take in the territorial sea and in the exclusive economic zone and the navigational rights of foreign vessels in those maritime zones. This balance is reflected in article 211 (Pollution from vessels), which recognizes not only the primacy of international rules and standards but also the interests of coastal States to the extent that they are compatible with the global legal regime.

482. In the territorial sea, the coastal State is permitted by UNCLOS to adopt special protective measures affecting international navigation, provided that they do not have the practical effect of hampering innocent passage and do not apply to the design, construction, manning or equipment of foreign ships (see articles 21 and 22). With respect to the exclusive economic zone, article 211, paragraph 6, of UNCLOS recognizes that there may be clearly defined areas of a coastal State which, owing to their oceanographical and ecological conditions, as well as the utilization or the protection of their resources and the particular character of their traffic, require special mandatory measures more stringent than what is provided by the generally accepted international rules and standards for the prevention, reduction and control of pollution of the marine environment from vessels. In these circumstances, UNCLOS grants the coastal State the right to adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the "competent international organization", i.e., IMO, for "special areas" (article 211 (1) (a)). Additional national laws and regulations relating to discharges and navigational practices may be adopted for the same area by the coastal State under paragraph (6) (c) of

article 211, provided they are agreed to by the competent international organization.

483. Measures which have been developed by IMO for the purpose of protecting specific marine areas from pollution from ships include the establishment of a special area under MARPOL 73/78 in which special discharge restrictions apply; or the adoption of navigational measures, such as areas to be avoided; and ship reporting systems (these measures are discussed in more detail in para. 389). IMO furthermore introduced the concept of a particularly sensitive sea area in 1978 and developed guidelines for the identification of a marine area as a particularly sensitive sea area in 1991.

484. Over the past 20 years since the adoption of UNCLOS, and since UNCED in 1992, IMO has designated a number of sea areas as special areas under MARPOL 73/78. Two particularly sensitive sea areas have been approved by IMO to date: the Great Barrier Reef of Australia and the Sabana-Camagüey Archipelago of Cuba. Two further particularly sensitive sea areas, the marine areas around the Florida Keys of the United States and the Malpelo Islands off Colombia, were expected to be designated at the session of MEPC in March 2002.

485. New revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas and Guidelines for the Designation of Special Areas under MARPOL 73/78 were adopted by the IMO Assembly at its 22nd session, in November 2001.

D. Climate change and sea-level rise

486. Scientific studies reveal that the interaction of the ocean and the atmosphere affects global and regional climatic features. Such effects include the unknown risk of sudden and large-scale "surprises", such as the reversal of the Gulf Stream or the collapse of the Greenland and West Antarctic ice sheets. While the likelihood of such devastating events may be very low, it increases with the rate and scale of global warming.[163]

487. The oceans store an immense amount of heat energy, much more than the atmosphere, and consequently play a crucial role in the regulation of the global climate. As in the atmosphere, currents assist in the transfer of heat from low to high latitudes. Warm water moves poleward while cold water returns towards the equator.[164]

488. Heat exchanges also occur vertically within the oceans — between surface water, usually the uppermost 200 metres or so, and the deep water. Sea water in the high latitudes readily sinks, forming deep-water currents. As in the atmosphere, the surface and deep-water currents of the world's oceans are interlinked, forming the global ocean circulation. Scientists have postulated that changes in this global ocean circulation influence climate changes over hundreds and thousands of years.[165]

489. The United Nations Framework Convention on Climate Change was adopted at UNCED in 1992. The Convention was signed by 154 States (plus the European Community) and entered into force on 21 March 1994. It is the centrepiece of global efforts to combat global warming. Its ultimate objective is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic (man-made) interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner."

490. Two notable guiding principles were enshrined in the Climate Change Convention. The principle of the "common but differentiated responsibilities"[166] of States assigns the lead in combating climate change to developed countries. The other is the precautionary principle.[167]

491. The Convention was followed by the Kyoto Protocol, adopted at the third Conference of the Parties in December 1997. Under the Protocol, industrialized countries have a legally binding commitment to reduce their collective greenhouse gas emissions by at least 5 per cent compared to 1990 levels by the period 2008-2012.

492. The seventh session of the Conference of the Parties to the Climate Change Convention was convened in Marrakesh, Morocco, in November 2001. A major portion of the decisions adopted at the session contained both the rules of implementation for the Kyoto Protocol and new arrangements for technical and financial support. In the Marrakesh Ministerial Declaration, adopted at the session, the Conference of the Parties noted that the decisions adopted, constituting the Marrakesh Accords, paved the way for the timely entry into force of the Protocol.[168]

493. The Third Assessment Report of the Intergovernmental Panel on Climate Change,[169] released in 2001, confirms that "an increasing body of observations gives a collective picture of a warming world" with "new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities". The global average sea level has risen by 10 to 25 centimetres over the past 100 years. It is likely that much of this rise is related to an increase of 0.3-0.6° C in the lower atmosphere's global average temperature since 1860.

494. Models project that sea levels will rise another 15 to 95 cm by the year 2100 (with a "best estimate" of 50 cm). This will occur due to the thermal expansion of ocean water and an influx of freshwater from melting glaciers and ice. The projected rise is two to five times faster than the rise experienced over the past 100 years. The rate, magnitude and direction of sea-level change will vary locally and regionally in response to coastline features, changes in ocean currents, differences in tidal patterns and sea-water density, and vertical movements of the land itself. Sea levels are expected to continue rising for hundreds of years after atmospheric temperatures stabilize.

495. The overall consequences of such sea-level rise include the following: coastal zones and small islands will become extremely vulnerable; flooding and coastal erosion will worsen; sea-level rise could damage key economic sectors and threaten human health; valuable coastal ecosystems will be at serious risk; and ocean ecosystems may also be affected.[170]

496. With regard to implementation of the provisions of the Convention and the Protocol, the United Nations Industrial Development Organization (UNIDO) is assisting developing countries with technical cooperation, training and awareness-building programmes for industry, information, technology transfer, the development of innovative financing mechanisms, and sound regulatory programmes for emissions control.

E. Ten-year review of the implementation of Agenda 21

497. Ten years after the adoption of Agenda 21, a review is to be undertaken at the World Summit on Sustainable Development, to be held in Johannesburg, South Africa, from 26 August to 4 September 2002, of the progress achieved in the implementation of the outcome of the United Nations Conference on Environment and Development (UNCED). The tenth session of the United Nations Commission on Sustainable Development is serving as an open-ended intergovernmental preparatory committee for the 10-year review. (For details on preparations for the Summit in 2001, see the previous annual reports (A/56/58 and A/56/58/Add.1).) One of the aims of the Summit, including its preparatory process, is to ensure a balance between economic development, social development and environmental protection.

498. Four meetings have been scheduled during the tenth session of the Commission on Sustainable Development in preparation for the Summit during 2001-2002: the first three held in New York, from 30 April to 2 May 2001, from 28 January to 8 February 2002 and from 25 March to 4 April 2002, and the fourth in Jakarta from 27 May to 7 June 2002.

499. At the end of 2001 subregional and regional preparatory committees were held in Africa, Asia and the Pacific, Europe and North America, Latin America and the Caribbean, and West Asia. The regional preparatory committees assessed the key challenges, opportunities and constraints relating to sustainable development faced by each region over the past 10 years, and identified future priorities, new initiatives and the commitments needed to make progress in the coming years.

500. While there were some differences in regional priorities, the following areas emerged as issues of common concern: implementation of the Rio Principles; globalization; poverty eradication; sustainable consumption and production; management of natural resources (including ocean resources); agriculture and food security; energy; freshwater and sanitation; sustainable human settlements; health; human development; financing of sustainable development; trade and market access; transfer of technology and capacity-building; governance/institutional structure for sustainable development; and decision-making and information requirements.

501. An informal brainstorming session was held on 16 and 17 January 2002 in New York to provide for an open, informal exchange of views in preparation for the second session of the preparatory committee. The second session (New York, 28 January-8 February

2002) was attended by over 1,000 representatives of Governments, United Nations agencies and convention secretariats, international organizations, and the nine major groups. Its purpose was to conduct a comprehensive review and assessment of progress achieved in the implementation of Agenda 21, including the Programme for the further Implementation of Agenda 21;[171] and to agree on a document that could form the basis of negotiations at PrepCom 3 in March.

502. The Commission heard reports on a number of intergovernmental meetings and processes, including the UNESCO presentation of the resolution adopted by the IOC Executive Council at its meeting on 10 and 11 December 2001,[172] outlining the commitments of IOC to raising awareness of the importance of oceans and to the Summit. In addition, the Executive Secretary of IOC discussed the deliberations and outcomes of the Global Conference on Oceans and Coasts at Rio+10, held in Paris, from 3 to 7 December 2001.

503. The Paris Conference was convened to assess global progress in the implementation of chapter 17 of Agenda 21 and related instruments. It was attended by 424 participants from 61 countries. The Conference highlighted the fact that sustainable development and poverty reduction cannot be achieved without healthy oceans and coasts. A key question identified was how to best sustain the natural resource base and the integrity of coastal and ocean ecosystem services while continuing to expand economically. It was strongly recommended that the United Nations should make sustainable development of oceans, which comprise 70 per cent of the Earth's surface, a central feature of the World Summit on Sustainable Development.

504. Among the main conclusions of the Conference were that: poverty reduction during the coming decade requires greater access to sustainable economic livelihoods and wealth derived from the ocean and the development of safer, healthy coastal communities; there is a need for capacity-building for good governance of coastal and ocean use; the health of the oceans and coasts is directly linked to the proper management of river basins, including freshwater flows to the marine environment; the protection of coastal and marine areas and biodiversity demands an ecosystem approach; strengthening science-based monitoring and assessment of the oceans is essential for managing the long-term sustainability of marine ecosystems; and it is necessary to address the special problems and issues of small island developing States.

505. During the debates at the Conference, many delegations expressed the view that greater attention should be given to the oceans, which are of central importance for human development, poverty reduction and food security. Concerns expressed focused on the protection and sustainable management of fisheries as well as coasts, and on coastal zone management. Reference was also made to the vital importance of shipping to global development and the safety of the seas.

506. Small island developing States urged a renewed commitment to the Barbados Programme of Action and requested support for a comprehensive 10-year review of its implementation in 2004.

507. The need for an integrated approach to marine and coastal management was also stressed, as requested by the Commission on Sustainable Development at its seventh session. Moreover, concerns were expressed that Governments and international institutions often followed a fragmented approach, based on sectoral issues. In that connection, consideration was given to the idea that oceans must be considered as a whole and not in a piecemeal fashion. Many delegations urged more effective implementation of the GPA, as called for in the Montreal Declaration of 2001.

508. Attention was given to the necessity for better scientific information on and assessment of the interaction between the atmosphere, oceans and climate change, especially with respect to coastal areas and small island developing States. On the other hand, it was recognized that the major constraint for small island developing States in implementing the Barbados Programme of Action was not lack of information but inadequate financial and technical resources. Many coastal developing countries lacked financial and technical support and required capacity-building, with regard to both institutions and human resources.

509. The Chairman's paper[173] is one of the major outcomes of the second session of the preparatory committee. Oceans issues, including those pertaining to the implementation of UNCLOS, are grouped under the key thematic area "Protecting and managing the natural resource base of economic and social development" (chap. IV). A separate thematic area is dedicated to "Sustainable development of small island developing States" (chap. VII). The Chairman's paper will be the

basis for negotiations at future sessions of the preparatory committee.

510. The Chairman's paper focuses on a number of issues, such as providing financial and technological assistance, in particular to support the full implementation of the GPA, and to enable developing countries to develop the capacity for the integrated management and sustainable use of fisheries; implementing sustainable fisheries as a basis for food security and sustainable livelihoods, through relevant agreements; supporting the implementation of the IMO conventions on marine safety and prevention of marine pollution, and finalizing and implementing conventions relating to vessel-based pollution; promoting the sustainable use and conservation of marine and coastal biodiversity, as stipulated under the Convention on Biological Diversity; strengthening regional cooperation and encouraging better coordination, including raising public awareness of the importance of the protection of the marine environment; strengthening capacities in marine science; and promoting more effective coordination and cooperation.

511. The economic and environmental vulnerability of small island developing States is referred to in chapter VII of the Chairman's paper. Issues underlined include: implementation of the Barbados Programme of Action, as well as its review in 2004; the need to support relevant regional fisheries management organizations and arrangements; the importance of providing assistance in the sustainable management of exclusive economic zones and extended continental shelf areas; the need to support the early operationalization of economic and environmental vulnerability indices; and the need to promote a global initiative to assist in the adaptation to climate change.

VIII. Marine science and technology

512. In UNCLOS, chapter XIII on marine scientific research, chapter XIV on development and transfer of marine technology, and some parts of chapter XII, on the protection of the marine environment, form the global regime for marine science and technology and provide the basis for relevant bilateral, regional and other international agreements for the promotion of scientific research on the ocean and its resources.

513. Agenda 21, and in particular chapter 17, includes action-recommendations which in large part aim at implementing effectively UNCLOS provisions for the protection and preservation of the marine environment and the rational use and development of its living resources. In its chapters 34 and 35, Agenda 21 stipulates that the availability of scientific and technological information and access to and the transfer of environmentally sound technologies are essential requirements for sustainable development.[174]

514. In the years since the holding of the Rio Conference and the adoption of Agenda 21, UNCLOS has come into force (November 1994), as have a number of other important international legal instruments which have a bearing on marine scientific research. Most of these instruments recognize that sustainable development must be science-based and supported by the appropriate technology.[175]

515. In this regard, the UNESCO Intergovernmental Oceanographic Commission (IOC) has been called upon to assume the main responsibilities in promoting marine scientific research, in particular with the publication and dissemination of marine science information and knowledge, the coordination of international marine scientific research projects, the provisions of basic scientific information towards the protection of the marine environment and the transfer of technology.[176]

516. Over the years, the IOC has experienced significant evolution, from an organization devoted mostly to the coordination of scientific programmes to one that has expanded its role in order to serve the multiple needs of its members States, assisting them in developing their own capabilities to use science for the development and management of the uses of the oceans.[177] In the revised statutes of the Commission,[178] adopted to reflect the new international context created by UNCED and the associated new global conventions as well as the entry into force of UNCLOS, the mission of the IOC is defined as: "to promote international cooperation and to coordinate programmes in research, services and capacity-building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment and the decision-making process of its member States" (article 2 (1)).

517. Other competent international organizations also play an important role vis-à-vis marine science and technology.[179]

518. Recently, the Second United Nations Open-ended Informal Consultative Process on Oceans established by the General Assembly in its resolution 54/33 dealt with the issue of marine science and marine technology and stressed the important role they play in promoting the sustainable management and uses of the oceans and seas as part of efforts to eradicate poverty, to ensure food security and to sustain economic prosperity and the well-being of present and future generations. The need was identified to ensure access for decision makers to advice and information on marine science and technology, the appropriate transfer of technology and support for the production and diffusion of factual information and knowledge for end-users (see A/56/121).

519. Following the entry into force of UNCLOS, IOC established the Advisory Body of Experts on the Law of the Sea (ABE-LOS) to give advice, upon request, to the executive bodies of the IOC and the IOC Assembly with regard to the possible role of the Commission in the implementation of UNCLOS.[180] (For information about the 1st meeting of ABE-LOS, held in June 2001, see A/56/58/Add.1, paras. 104-113.) ABE-LOS will hold its 2nd meeting in El Jadida, Morocco, from 6 to 9 May 2002. In accordance with the recommendations adopted at the 1st meeting,[181] the 2nd meeting will continue discussions on the criteria and guidelines for the transfer of marine technology, issues pertaining to the consent regime (article 246 of UNCLOS) and appropriate internal procedures related to the effective and appropriate use of UNCLOS article 247. As specified in the recommendations, two open-ended subgroups, one on transfer of marine technology[182] and the other on procedures under article 247 of the Convention, have been established and are working in close cooperation with the Division for Ocean Affairs and the Law of the Sea.

520. In its review of major accomplishments and constraints at the global level since UNCED, the Co-Chairs of the Global Conference on Ocean and Coasts at Rio+10 (Paris, 3-7 December 2001) stated in their report[183] that in the past 10 years there has been a turning point in terms of understanding and measuring the role of the oceans in global climate change and in developing the observational tools needed to forecast change. Significant improvements have been made in the models and technology for monitoring climate changes; and the scientific community has succeeded in narrowing the level of uncertainty regarding many ocean processes. The collection of previously unavailable information is now being organized and utilized through a concerted inter-agency and intergovernmental effort to continuously monitor the major planetary processes. The building of the institutional framework for developing Earth system science is well under way and recent success stories include the establishment of programmes such as the World Climate Research Project and the International Geosphere and Biosphere Programme on Global Environmental Change. This is due in part to the existence of high-quality observational networks worldwide, which need to be maintained and sustained over time. The full and open exchange of environmental data which is essential for the protection of life-supporting natural systems, is a principle that calls for universal recognition.[184]

A. Marine science programmes in the United Nations system

521. The progress achieved in marine science in recent times is quite remarkable. A number of large-scale projects exemplify the current efforts being made to study the marine environment from a wider perspective. The details of several of these projects, which are described in the following paragraphs provide a broad picture of significant recent developments.

522. Scientists from a number of research institutes are planning to place sensors and lay fibre-optic cables to provide electric power and communications to the sensors to cover an entire tectonic plate, the 80,000-square-mile Juan de Fuca Plate, in the Pacific off the north-west coast of the United States and the south-west coast of Canada. Project Neptune, at a cost of $200 million, is expected to be operational in four or five years, and will allow scientists to study the dynamic processes that drive plate tectonics.

523. Plans are under way to undertake another large-scale project, to study the entire Mid-Atlantic Ridge, the world's largest mountain range, albeit underwater, spanning the whole Atlantic Ocean. The objective would be to study how new crust is being formed where the large tectonic plates are grinding against each other.

524. Another large-scale project is the Census of Marine Life, a $1 billion international project to inventory all marine living beings. Its objective is to assess and explain the diversity, distribution and abundance of marine life in the world's oceans (see also A/56/121, para. 20).

525. The international Argo programme is well known to the international community. It is part of the integrated Global Ocean Observing System (GOOS), under the auspices of IOC and WMO, working with UNEP and ICSU. Using 3,000 profiling floats, its goal is to profile the complete upper ocean over the entire world, in real time by 2005, providing various types of oceanographic data (physical, chemical and biological) (see para. 533 below, as well as A/55/61, para. 257; A/56/58, para. 513; and A/56/121, paras. 223-226).

526. IOC has been the lead agency in the United Nations system with regard to ocean science and services, especially in the sphere of global ocean observations, through its GOOS programme.

Ocean science[185]

527. *Climate Variability and Predictability Study (CLIVAR)* and *World Ocean Circulation Experiment (WOCE)*. CLIVAR and WOCE are the projects of the World Climate Research Programme (WCRP) with the most significant involvement and dependence on ocean science. Activities include GODAE, the joint WCRP-SCOR Working Group on Air-Sea Fluxes, the Surface Ocean/Lower Atmosphere Study (SOLAS), the Climate and Cryosphere (CliC) project, the Arctic Climate System Study (ACSYS) and the Coordinated Enhanced Observing Period (CEOP) and Global Atmospheric Boundary Layer Study of the Global Energy and Water Cycle Experiment (GWEX).

528. The year 2001 was the penultimate year of WOCE as a part of WCRP. Major publications marking the significant achievements of this 20-year project have begun appearing, among them: "Ocean Circulation and Climate — Observing and Modelling the Global Ocean"; a series of four atlases (one for each major ocean) presenting the results of the unprecedented global hydrographic survey of the physical and chemical properties of the oceans. The WOCE high-quality data sets will also continue to be mined by future researchers and the steady flow of results will continue to have an impact on the understanding of the physics of ocean circulation and its role in climate. WOCE science will be the focus of a major international conference to be held in San Antonio, Texas, in November 2002, marking the end of the WOCE programme as a separate element of WCRP.

Global Ocean Observing System (GOOS)[186]

529. GOOS is influencing national thinking and planning. Many countries are currently planning, or conducting their own coastal and ocean observations in line with the GOOS Strategic Plan and Principles. Many countries have created GOOS Committees with a view to developing contributions to GOOS at the national or regional level by improving their operational oceanography methods and practices so as to meet management needs and address policy issues. The user community is being consulted regularly about GOOS design through stakeholder workshops, to ensure that the end products meet user needs.

530. To a fair extent, GOOS implementation will depend upon the success of the newly created Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), which will hold its first intergovernmental meeting in Akureyri, Iceland, from 19 to 29 June 2002.[187]

531. In 2001, the GOOS Initial Observing System (GOOS-IOS), a collection of existing observing subsystems, expanded with the inclusion of two new subsystems.

532. GOOS is also being implemented through pilot projects such as the Global Ocean Data Assimilation Experiment (GODAE).[188] The most significant recent development is the establishment of the GODAE server operated by the United States in Monterey, California. The site will provide access to all GODAE data, either directly or via distributed access, as well as providing a range of products. A similar facility is being established in France.

533. GODAE itself has pilot projects. The largest GODAE pilot project is the Argo project[189] to seed the ocean with 3,000 profiling floats that will all be operational during the period 2003-2005. This will provide the first global coverage ever of the temperature and salinity of the upper ocean, an essential ingredient in the improvement of numerical models and forecasts of the behaviour of the ocean, weather and climate systems. The existing multinational commitments to Argo include 984 floats already funded and 2,274 proposed over the next three

years, which suggests that the project goals will be met on time. A regional implementation planning for Argo for the Indian Ocean was held in Hyderabad, India, in July 2001.

534. Regional meetings[190] were held to advance the development of GOOS in the Caribbean, GOOS-Africa, Indian Ocean GOOS, and South-East Asia and North-East Asia GOOS. MedGOOS attracted major funding from the European Commission to expand development of the observing system in the Mediterranean. NEAR-GOOS has embarked on a strategic planning exercise that should lead to the structured inclusion of chemical and biological parameters.

535. In January 2001, the partners in the Integrated Global Observing Strategy (IGOS)[191] published an "ocean theme" document indicating the capabilities and developments needed in space-based measurements to make GOOS fully operational. A major development in this context was the announcement at the last IGOS meeting in Kyoto, Japan, of the intention of NASA, NOAA, CNES and EUmetsat to jointly start the planning and development, as requested in the ocean theme Intergovernmental Oceanographic Commission, of a high-precision oceanographic altimetry mission, to follow Jason I, which had been successfully launched from Vandenberg Air Force Base in California on 7 December 2001.

536. GOOS, through its climate and ocean component GCOS, and a number of other agencies and observing systems presented to the Conference of the Parties to the United Nations Framework Convention on Climate Change, a summary of current global requirements in the area of climate observations. As a result, the Conference of the Parties is requiring the Parties to develop action plans to implement climate-monitoring systems, including ocean components that will form part of GOOS. The goal is to meet the urgent need to improve the quality, coverage and management of the global ocean observing system, and especially to support the increase in the number of ocean observations, particularly in remote locations, called for by the Conference of the Parties.

537. *International Oceanographic Data and Information Exchange (IODE)*. The IODE system was established in 1961 to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating member States and by meeting the needs of users for data and information products. The IODE system is a worldwide, service-oriented network consisting of designated national agencies, national oceanographic data centres and world data centres-oceanography. During 2001, Cameroon and Togo joined the IODE system, which now has 64 members.

538. *(a) IOC data and information management: the regional projects and activities*. Through the regional networks, IODE has established close working relationships with other IOC programmes such as the Ocean Science Programme (e.g. to provide ocean data and information to assist the ICAM programme), GOOS, as well as with other non-IOC programmes and projects, providing them with ocean data and information services with expertise.

539. Implementation of the Ocean Data and Information Network for Africa (ODINAFRICA) project[192] started in 2001. The Ocean Data and Information Network for the IOC Subcommission for the Caribbean and Adjacent Regions (IOCARIBE) and South America Regions (ODINCARSA) is the newly established (July 2001) network to implement a regional ocean data and information programme for these regions. Fourteen countries attended the first ODINCARSA planning workshop (Guayaquil, Ecuador, 24-26 October 2001).

540. *The UNESCO/IOC Ocean Portals (African Ocean Portal-Caribbean/South American Ocean Portal)* will provide access to information and data on all aspects of ocean/coastal research and management for the benefit of various communities such as decision makers, the private sector, the education community and the general public. The Ocean Portal is a high-level directory of ocean data and information-related web sites, launched in July 2001, containing descriptions of over 3,000 sites. The development of regional portals will provide for increased ownership of the portal by the target audiences and will enable a more targeted focus on national and regional issues.

541. *(b) General Bathymetric Chart of the Oceans (GEBCO) and Ocean Mapping Programme (OMP)*. The main goal of GEBCO and OMP is to cover the world ocean with bathymetric and geological/geophysical charts in order to provide decision makers, scientists, students and a wide range of users with information about the bottom relief and

geological parameters of the open part of the world ocean and exclusive economic zone. GEBCO and OMP provide a useful framework for many IOC programmes.

542. At the end of December 2001, the third version of the GEBCO Digital Atlas CD-ROM was released. Furthermore, all seven regional bathymetric projects within OMP were developed successfully during 2001. They covered the following areas: Western Indian Ocean; Caribbean Sea and Gulf of Mexico; Arctic Ocean; Central Eastern Atlantic; and Western Pacific. In accordance with a request of the IOC member States from the South-East Pacific region, a new project for a bathymetric chart on the region was established in 2001.

543. *World Meteorological Organization*. In its contribution to the present report, WMO notes that while data from the ocean data buoys, both drifting and moored, are of considerable value to States, some coastal States have expressed concerns regarding those platforms that drift into territorial waters and exclusive economic zones. Measures need to be taken to address these concerns and enhance understanding of the nature of the platforms and the applications and value of the data.

544. In addition, for a number of reasons, the availability of meteorological and oceanographic observations made by ships at sea (WMO Voluntary Observing Ships (VOS) scheme) and transmitted to shore in real time has been stagnant or decreasing for several years. Since such observations are critical to an enhanced scientific understanding of fluxes at the air-sea interface and eventually for modelling and prediction of such fluxes in coupled atmosphere-ocean climate models, efforts are required to enhance data quality.

545. WMO still continues to point to the lack of capacity of many developing countries, which inhibits their ability to participate in and contribute to the major marine observation and services programmes of WMO and IOC, or to benefit from the data and products which these programmes generate.[193]

546. In response to the above issues, WMO, in close cooperation with IOC, has undertaken a number of activities: (a) A JCOMM in situ observing platform support (JCOMMOPS) working primarily through a database accessed through a dedicated web site (http://www.jcommops.org), has been launched, providing a wealth of operational information and technical support to the operators as well as the users of ocean data buoys and subsurface floats. It also provides real-time information to coastal States regarding the positions and status of all such platforms in operation; (b) A VOS Climate project has been established and made operational to provide a subset of high-quality air-sea flux data to be used as a reference data set for coupled atmosphere-ocean models and the calibration of satellite-sensed ocean data; and (c) a South-East Asian Centre for Atmospheric and Marine Prediction (SEACAMP) Project and a Western Indian Ocean Marine Application Project (WIOMAP) have been set up for the enhancement of marine observing networks, data management and services in both ocean regions. These are regional cooperative projects involving both meteorological and oceanographic agencies and institutions.

547. In a major cooperative initiative to pool the resources and expertise of the meteorological and oceanographic communities, both nationally and internationally and in support of programmes addressing major global concerns, IOC and WMO established JCOMM jointly in 1999 (see also A/54/429, para. 622). At its meeting in June 2001,[194] the Commission established a comprehensive work plan which in particular seeks to implement a fully integrated ocean observing and data management system to support maritime safety, global climate studies and marine environmental protection.

B. Marine technology programmes in the United Nations system

548. At the special session of the General Assembly to review and appraise the implementation of Agenda 21, in 1997, the Assembly noted that provision of adequate and predictable financial resources and the transfer of environmentally sound technologies to developing countries are critical elements for the implementation of Agenda 21. It further noted: "However, while some progress has been made, much remains to be done to activate the means of implementation set out in Agenda 21, in particular in the areas of finance and technology transfer, technical assistance and capacity-building."[195]

549. UNIDO, as a global forum on industrialization, has a particular mandate to strengthen industrial capacities in developing countries and countries in transition. In this regard, its activities are grouped in

two main programmes: (a) "Strengthening of industrial capacities", which includes, inter alia, (i) promotion of investment and related technologies; (ii) institutional capacity-building at the country and sectoral levels; and (iii) industrial information through networking, including information on the transfer of technology; and (b) "Cleaner and sustainable industrial development", in order to (i) support programmes on environmentally sustainable industrial development strategies and technologies, including on transfer of environmental technologies within industrial subsectors assigned high priority; and (ii) development of specific norms and standards relating to environmentally sustainable industrial development strategies and technologies, and implementation of international protocols, agreements and conventions. (For further details on the capacity-building activities of UNIDO, see paras. 596-603.)

550. The ninth session of the UNIDO General Conference was held at Vienna from 3 to 7 December 2001. The Conference suggested that the UNIDO industrial capacity-strengthening work should focus on areas such as institutional capacity-building for the application of technical standards, investment promotion and technology transfer for enhanced productivity and competitiveness, closer North-South cooperation and the extension of technology foresight activities.[196]

551. Discussions on the issue of transfer of technology also took place within the Commission on Investment, Technology and Related Financial Issues of the United Nations Conference on Trade and Development (UNCTAD) Trade and Development Board. An expert meeting was held on "International arrangements for transfer of technology: best practices for access to and measures to encourage transfer of technology with a view to capacity-building in developing countries, especially in least developed countries".[197] During the discussions, the experts were of the view that measures should be taken to prevent anti-competitive practices by technology rights holders or the resort to practices which unduly impede the transfer and dissemination of technology. They noted, however, that although control of such practices was common in developed countries, there was a lack of legislative measures in this regard in many developing countries. The development of relevant legislation at either the national or the regional level was considered to be a promising option. Countries should be encouraged to create a hospitable domestic regulatory environment for foreign investment, along with intellectual property protection for access to the newest technologies. They suggested that supporting capacity-building, in particular in the least developed countries should be carried out through specific projects and programmes and by establishing scientific and technological infrastructure on a cooperative basis for both public and private research facilities to enable them to assess, adopt, manage, apply and improve technologies.[198] Another important suggestion of the experts was that the relevant international instruments should contain built-in implementation mechanisms, including financial provisions and monitoring arrangements.[199]

IX. Settlement of disputes

552. Under Part XV, section 1, of UNCLOS, States parties are required to settle their disputes concerning the interpretation or application of the Convention by peaceful means in accordance with Article 2, paragraph 3, of the Charter of the United Nations. However, when States parties to UNCLOS involved in a dispute have not reached a settlement by peaceful means of their own choice, they are obliged to resort to the compulsory dispute settlement procedures entailing binding decisions, subject to limitations and exceptions, provided for under the Convention (Part XV, sect. 2).

553. The mechanism established by the Convention provides for four alternative procedures for the settlement of disputes, i.e., the International Tribunal for the Law of the Sea; the International Court of Justice; an arbitral tribunal constituted in accordance with Annex VII to UNCLOS; or a special arbitral tribunal constituted in accordance with Annex VIII to UNCLOS. States parties may choose one or more of the procedures by written declaration made under article 287 of UNCLOS and deposited with the Secretary-General of the United Nations.

554. UNCLOS entered into force on 16 November 1994 and the International Tribunal for the Law of the Sea was inaugurated in October 1996. In its brief history to date, the Tribunal has heard 10 cases that have been brought before it regarding issues of direct relevance to the application or interpretation of UNCLOS by States parties.

555. During the period under review, the Tribunal was seized of the *Mox Plant case (Ireland v. United Kingdom)*; and the International Court of Justice was seized of the cases concerning *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)* and *Territorial And Maritime Dispute (Nicaragua v. Colombia)*. Further details on these cases may be found at the web sites of the Tribunal and the International Court, respectively, at: www.itlos.org/ and www.icj-cij.org/.

556. *Trust Fund.* It is recalled that pursuant to paragraph 9 and annex I to General Assembly resolution 55/7, the Secretary-General established a Trust Fund for the purpose of assisting States in the settlement of disputes through the International Tribunal for the Law of the Sea. No formal requests have been received by the Secretariat as yet for assistance from the Fund. To date, contributions to the Trust Fund amount to $24, 865 (United Kingdom).

A. Case before the International Tribunal for the Law of the Sea[200]

557. *Mox Plant case (Ireland v. United Kingdom).* On 9 November 2001, a request for prescription of provisional measures, pending the constitution of an arbitral tribunal to be established under Annex VII of the United Nations Convention on the Law of the Sea, was submitted to the Tribunal.

558. The dispute, according to the request, stems from the authorization of the United Kingdom to open a new "Mox" plant in Sellafield, United Kingdom. The plant is designed to reprocess spent nuclear fuel containing a mixture of plutonium dioxide and uranium dioxide into a new fuel, which is known as mixed oxide fuel or "Mox". The Government of Ireland is concerned that the operation of the plant will contribute to the pollution of the Irish Sea and underlines the potential risks involved in the transportation of radioactive material to and from the plant.

559. On 25 October 2001, Ireland notified the United Kingdom that it was requesting that their dispute be submitted to an arbitral tribunal in accordance with Annex VII of UNCLOS. In addition and pending the constitution of such an arbitral tribunal, Ireland requested, in its application to the International Tribunal for the Law of the Sea, the prescription of provisional measures.

560. The United Kingdom requested the Tribunal to reject Ireland's request for provisional measures and to order Ireland to bear the United Kingdom's cost in the proceedings.

561. A hearing was held on 19 and 20 December 2001. The Tribunal, based on article 282 of UNCLOS, examined the United Kingdom argument that the Tribunal was not competent to prescribe provisional measures since the main elements of the dispute were governed by regional agreements, including European treaties, which provide for binding means of resolving disputes. However, the Tribunal took the view that the dispute concerned the interpretation and application of UNCLOS only. The United Kingdom also maintained that the requirements of article 283 had not been satisfied since no exchange of views had taken place between the parties before the case was submitted to the Tribunal. The Tribunal considered that a State Party was not obliged to continue with an exchange of views if it concluded that the possibility of reaching an agreement had been exhausted. Therefore, it found that an Annex VII arbitral tribunal would prima facie have jurisdiction over the dispute.

562. As regards whether provisional measures were required pending the constitution of an Annex VII arbitral tribunal, the Tribunal noted that, in accordance with article 290, paragraph 5, of UNCLOS, it might prescribe provisional measures if it considered that the urgency of the situation so required. The Tribunal found that the urgency of the situation did not require the prescription of provisional measures, as requested by Ireland, in the short period before the constitution of an Annex VII arbitral tribunal.

563. Nonetheless, the Tribunal considered the duty to cooperate as a fundamental principle in the prevention of the pollution of the marine environment under Part XII of UNCLOS and general international law and that rights arose therefrom which the Tribunal might consider appropriate to preserve under article 290 of UNCLOS. Accordingly, it prescribed a provisional measure, pending a decision by an Annex VII arbitral tribunal, to the effect that Ireland and the United Kingdom were to cooperate and enter into consultations in order to exchange further information with regard to possible consequences for the Irish Sea arising out of the commissioning of the Mox plant; monitor the risks or the effects of the operation of the Mox plant for the Irish Sea; and devise, as appropriate, measures to prevent the pollution of the marine

environment which might result from the operation of the Mox plant. Moreover, the Tribunal decided that each party was to submit an initial report on compliance with the provisional measure prescribed by 17 December 2001 and authorized the President of the Tribunal to request such further reports and information as might be deemed necessary after that date.

B. Cases before the International Court of Justice[201]

564. *Territorial and Maritime Dispute (Nicaragua v. Colombia)*. Nicaragua instituted proceedings against Colombia on 6 December 2001 and invoked, as a basis for the Court's jurisdiction, article XXXI of the 30 April 1948 American Treaty on Pacific Settlement (Pact of Bogotá), to which both Nicaragua and Colombia are parties. Nicaragua also referred to the declarations under Article 36 of the Statute of the Court, by which Nicaragua (1929) and Colombia (1937) had accepted the compulsory jurisdiction of the Court.

565. Nicaragua claimed that the islands and keys of San Andrés and Providencia islands pertained to the group of islands and keys that in 1821, date of independence from Spain, became part of the newly formed Federation of Central American States, and that in 1838, after the dissolution of the Federation, became part of Nicaragua. Moreover, Nicaragua considered that the Barcenas-Esguerra Treaty of 24 March 1928, which is not a treaty of delimitation, lacked legal validity and consequently could not provide a basis for Colombian title to San Andrés. Accordingly, Nicaragua requested the Court to adjudge and declare that Nicaragua had sovereignty over the islands concerned and on that basis to determine the course of the single maritime boundary between the areas of continental shelf and exclusive economic zone appertaining to Nicaragua and Colombia in accordance with equitable principles and relevant circumstances recognized by international law.

566. Nicaragua indicated that it reserved the right to claim compensation for elements of unjust enrichment consequent upon Colombian possession, in the absence of lawful title, of the islands of San Andrés and Providencia as well as the keys and maritime spaces up to the 82nd meridian. Also, Nicaragua reserved the right to claim compensation for interference with fishing vessels of Nicaraguan nationality or vessels licensed by Nicaragua.

567. By an Order dated 26 February 2002, the International Court, taking into account the views expressed by the parties, fixed 28 April 2003 as the time limit for the filing of a Memorial by Nicaragua and 28 June 2004 as the time limit for the filing of a Counter-Memorial by Colombia.

568. *Sovereignty over Pulau Ligitan and Pulau Sipadan (Indonesia/Malaysia)*. On 23 October 2001, the Court delivered its judgment on the application of the Philippines for permission to intervene in the case and found that it could not grant such permission since the Philippines had failed to show that it had an interest of a legal nature specific to its claim that might be affected by the final judgment in the case. It is recalled that the Court had been requested to determine whether sovereignty over Pulau Ligitan and Pulau Sipadan, two islands in the Celebes Sea, belonged to either Indonesia or Malaysia. On 13 March 2001, the Philippines filed an application with the Court to intervene in the case in order to preserve its historical and legal rights arising from its claims to dominion and sovereignty over North Borneo.

X. Cross-cutting issues

569. The General Assembly, in its resolution 56/12, paragraph 48, recommended that one of the two areas around which the Consultative Process should organize its discussion at its third meeting should be "capacity-building, regional cooperation and coordination, and integrated ocean management, as important cross-cutting issues to address ocean affairs, such as marine science and the transfer of technology, sustainable fisheries, the degradation of the marine environment and the safety of navigation".

570. Cross-cutting issues are relevant across various marine and coastal sectors, and encompass multiple aspects of ocean affairs, from a number of aspects. An excellent example of the significance and interrelations of cross-cutting issues in ocean affairs is provided by General Assembly resolution 55/203 of 20 December 2000, in which the Assembly recognized "the importance of adopting an integrated management approach to the Caribbean Sea area in the context of sustainable development", encouraged States, in that regard, "to continue to develop regional cooperation in

the management of [the Caribbean countries'] ocean affairs in the context of sustainable development", and called upon "the international community, the United Nations system and the multilateral financial institutions ... to support actively the above-mentioned approach."[202]

A. Capacity-building

571. Many countries, in particular developing countries, especially the least developed among them and small island developing States, simply do not have the capacity to implement UNCLOS, related conventions, chapter 17 of Agenda 21 and related programmes of action. The concern about lack of capacity and the consequent need for capacity-building were expressed pointedly, urgently and repeatedly in, among others, General Assembly resolutions (see, for example, resolution 56/12, paras. 6-8, and resolution 55/7, para. 23); statements of delegations in the General Assembly and in the Consultative Process; and the reports of the Co-Chairpersons of the Consultative Process (see for example, A/56/121, paras. 24-26, 59-63, 86-88, 155-160).

572. Limitations in capacity not only hinder countries from benefiting from oceans and seas and their resources under UNCLOS and Agenda 21; such limitations may also create opportunities for others to divert the benefits to themselves. Examples of the latter category include: (a) limitations of capacity to regulate resource exploitation; if (b) where regulations against illegal exploitation exist, limitations in enforcing such regulations; if (c) where enforcement exists limitations in monitoring and controlling resource exploitation, thereby allowing misreporting. In many cases, there is not only a loss of income and well-being for the present generation, but future generations are also affected because the diversion of benefits can be of such an extent as to jeopardize the very sustainability of the resources.

573. The framers of UNCLOS were keenly aware of the need for capacity-building, especially in the absence of any fund or assistance programme embedded in the Convention itself. As the Co-Chairpersons of the Consultative Process have pointed out, "Although the United Nations Convention on the Law of the Sea does not use the phrase 'capacity-building', it contains about 25 references to the need to help developing States and take their concerns into account" (A/AC.259/L.3, appendix II, para. 6). In addition to devoting an entire chapter, chapter 37, to capacity-building, Agenda 21 in its chapter 17 includes suggestions about capacity-building as a means of implementing the programme of action on oceans and seas, listed under each of the seven identified programme areas (for a brief summary of the suggestions, see A/56/58, paras. 550-556).

574. "Specifically, capacity-building encompasses the country's human, scientific, technological, organizational, institutional and resource capabilities" (Agenda 21, para. 37.1). Both financial assistance and in-kind assistance can be useful for implementing capacity-building measures. Essentially such measures broaden and deepen the human resource base, strengthen the institutional structure and the institutions themselves, and expand the physical resource base. A wide range of measures can be relevant which involve, inter alia, executing technical cooperation projects, including those related to transfer of technology and know-how; undertaking educational, training, research and public awareness programmes and strengthening institutions capable of carrying out such programmes; exchange of data, information and experiences; creating and strengthening physical as well as institutional infrastructure; and provision and mobilization of raw materials, equipment, facilities and vessels.

575. With a view to facilitating the deliberations in the General Assembly and in the Consultative Process, the following paragraphs provide information, in brief, about the capacity-building measures of international organizations relating to oceans and seas, starting with the provision of financial resources. It should be added that measures of national agencies and institutions, both in developed countries and developing countries as well as in countries whose economies are in transition, can contribute significantly to capacity-building in other countries. (For example, during the second meeting of the Consultative Process, mention was made of the provision of financial resources, technical assistance, equipment and vessels, education and training by national agencies and institutions (see A/56/121, Part B, para. 88)). At the regional level, the work of many regional organizations involves the capacity-building of their respective member countries; the regional projects of many global organizations also include elements of capacity-building. For example, the secretariat of the Pacific Communities assisted the

maritime training institutions in the Pacific island countries in complying with the requirements of the STCW 95 Convention. It also has an extensive mentoring programme for raising the awareness of non-technical personnel, at operational and policy levels, about the many aspects of the maritime sector. (For further details, see the SOPAC contribution in annex II to the present report.)

576. Capacity-building is a major part of the work programme of almost all international organizations dealing with ocean affairs. Many of their activities, although strictly speaking capacity-building measures, can still contribute to enhancing the capacity of member States. For example, the provision of information and analysis through information systems, databases, web sites, publications, handbooks, etc., can expand the capacity of national experts. Many other activities have a component of providing advice which, broadly speaking, can be interpreted as technical assistance and transfer of knowledge and know-how.

577. In 2000, UNDP carried out a preliminary survey of the capacity-building activities of the organizations of the United Nations system related to oceans and seas. The survey findings show that the range of activities is quite wide and the scope quite diverse. Focusing on education, training and field projects, the survey found that fellowships in ocean affairs are awarded by UNESCO, IMO, the United Nations and UNU; training programmes are carried out by IOC, IMO, FAO, IAEA and the United Nations; field projects are executed by FAO, IAEA, IMO, UNDP and UNIDO. (For further details on the survey findings, see A/56/58, paras. 557, 568-569.) In its contribution to the present report, the Department of Political Affairs of the United Nations Secretariat commented that FAO, IMO and UNDP appear to be engaged extensively in capacity-building activities in matters relating to oceans and seas, with remarkable results. It would therefore be useful, the Department suggested, to carry out a comparative study of the socio-economic impact of the wide range of capacity-building activities undertaken by those organizations as well as by UNU, UNESCO and its IOC, and IAEA, to see what should be done further to promote capacity-building.

578. As to financing, the report of the Co-Chairs of the Global Conference on Oceans and Coasts at Rio+10 (paras. 3-7, December 2001) stated: "In the last decade, significant new funding for coastal and marine programmes and activities has been provided by many multilateral and national donors, and financial institutions such as the World Bank, the Asian Development Bank, the Inter-American Development Bank, and SIDA, CIDA, JICA, DANIDA, USAID, among many others."[203,204] The report goes on to provide data about funding: in the past decade, World Bank funding for projects related to coastal and marine areas was in the order of $500 million in Africa and $175 million in the Asia-Pacific region; the Asian Development Bank funded marine projects in the Asia-Pacific region to the extent of $1.2 billion; in Latin America and the Caribbean, funding by international donors in coastal and marine projects amounted to about $1.3 billion. The report also discusses funding by GEF for projects related to international waters, biodiversity and climate change, all of which have major marine components.

579. *Global Environment Facility*. In its contribution to the present report, GEF stated that it views the ever expanding degradation of coastal and marine ecosystems to be of critical concern to the global community. Since its establishment in 1991, it has supported 83 projects requested by GEF recipient States that directly address coastal and marine protection, at a total cost exceeding $1.1 billion ($0.480 billion in GEF grants). About 110 recipient countries are participating in approved international waters projects and 24 countries are involved with approved biodiversity projects focusing on coastal and marine ecosystems. An additional 20 international waters projects and 16 biodiversity projects are under preparation by GEF, and new developments in the area of persistent organic pollutants can be relevant to them. The international waters area of GEF has been particularly active in supporting projects in ocean affairs for 36 small island developing States and for 32 of the United Nations-designated least developed countries.

580. With its decade of experience in providing catalytic assistance to developing States and those in economic transition, GEF, in its contribution, presented a summary of its work since UNCED relating to coastal and marine ecosystems.

581. GEF projects are implemented by UNDP, UNEP and the World Bank and expanded opportunities exist for other executing agencies. Since 1991, GEF has allocated $4.2 billion in grant financing, supplemented by more than $10 billion in additional financing, for more than 1,000 projects in 156 developing countries

and those in economic transition. All six thematic areas of GEF — biodiversity loss, climate change, degradation of international waters, ozone depletion, persistent organic pollutants, and land degradation — have implications for coastal and marine ecosystems. Of the six areas, the biodiversity and international waters focal areas have been utilized by developing States more than the other areas to address coastal and marine issues.

582. *International waters.* The international waters focal area of GEF was established to help recipient nations address concerns of bodies of water that are transboundary in nature. Over 95 per cent of all capture fisheries of the oceans are taken from the 50 large marine ecosystems (LMEs — an LME is an extensive region with a unique hydrographic regime, distinguishable biological productivity and trophically dependent populations). In 1995, the GEF Council included the concept of LMEs in its GEF Operational Strategy as a vehicle for promoting the ecosystem-based management of coastal and marine resources in the international waters focal area within a framework of adaptive management. GEF allocations to this focal area are limited; consequently it has played a modest, catalytic role during the past decade in order to test approaches and demonstrate strategies for reversing degradation and restoring biomass.

583. The GEF Operational Strategy recommends that nations begin to address coastal and marine issues by jointly undertaking strategic processes for analysing factual, scientific information on transboundary issues, setting priorities, and then determining the policy/legal/institutional reforms and investments needed to address the priorities in a country-driven strategic action programme.

584. The recommended GEF processes in LME projects foster "learning by doing" and capacity-building as "enabling activities" do in other GEF focal areas. They allow the scientific community to become engaged and provide interim outputs that may serve as vehicles for stimulating stakeholder participation. These processes foster cross-sectoral integration so that a truly ecosystem-based approach to improving management institutions may be pursued. This builds confidence among different sectoral interests in a State (through establishing a GEF inter-ministerial committee in each State) and then among participating States sharing the LME. The process of producing the strategic action programme facilitates the further development of country-driven, politically agreed ways for commitments to action that address the priorities in a framework that encourages adaptive management. This shared commitment and vision for action has proved essential in GEF projects that have completed the processes in securing commitments for policy, legal, and institutional reforms in different economic sectors. GEF may then fund an implementation project to assist countries in addressing the country-driven priorities for reform and investments. These LME projects were designed for consistency with chapter 17 of Agenda 21, and they also promote consistency with UNCLOS, the 1995 Fish Stocks Agreement, the FAO Code of Conduct for Responsible Fisheries, the GPA, regional seas agreements and regional fisheries agreements.

585. In the first decade of GEF (1991-2001), the GEF Council approved 46 international waters projects addressing the degradation of coastal and marine ecosystems, of a total cost of $850 million ($361 million in GEF grants).

586. According to GEF, its LME projects are revolutionizing ways of implementing the integrated management of oceans, coasts, estuaries and freshwater basins through an ecosystem-based approach. Ten LMEs and their adjacent freshwater basins, where appropriate, have been approved for funding. In order to integrate freshwater basin States contributing pollutants to the LME, a number of projects have been "nested" or focused in a programmatic approach to provide a greater chance of success. In all, 25 approved international waters projects have been developed to address the 10 LMEs and their transboundary priority concerns. The projects represent a total cost of $520 million ($224 million in GEF grants). While 72 GEF recipient countries are participating in the projects related to the 10 LMEs, non-recipient OECD countries also share these LMEs or are located in contributing basins, such as Germany and Austria in the Danube Basin draining to the Black Sea. Emphasizing the global situation in which both developed and developing nations must cooperate in order to reverse the continuing degradation of coastal and marine ecosystems, a total of 18 non-recipient developed States are collaborating with the GEF recipient States in those LME projects on the particular high-priority concerns relevant for each body of water: depletion of fisheries in some, habitat restoration/protection in

others, and reduction of pollution from land-based sources in still others.

587. *Biodiversity*. GEF is the largest financier of activities that protect global biodiversity in developing States and those with transitional economies. The projects are driven by country needs, priorities and actions as expressed through the Convention on Biodiversity. In its early years, GEF supported many protected areas projects. To date, it has funded 37 biodiversity projects directly addressing coastal and marine ecosystems, at a total cost of the $289 million ($116 million in GEF grants) and with the involvement of 24 nations. A number of country-wide projects for protected areas management also include marine ecosystems. Overall, there are 24 projects of a total cost of $125 million ($79 million in GEF grants) for assisting States in managing protected areas containing coral reefs. Capacity-building components are normally included within the projects. A further 16 biodiversity projects addressing coastal and marine issues are under preparation. Altogether, approved projects and those under preparation cover 12 least developed countries. These biodiversity projects represent important interventions to help improve the protection and preservation of the marine environment because sustainable use of the ecosystems provides the key to livelihoods and food security for coastal communities.

588. As examples, a series of two projects with UNDP assistance helped Argentina and NGOs along the Patagonia coast to conserve the fragile coastal ecosystems, while GEF support is helping Belize, Ghana and Indonesia shield the undersea beauty and rich biodiversity of the barrier reefs and coastal wetlands. The creation of marine protected areas has allowed depleted fisheries to recover, with improvements in stocks of lobster, conch, and reef fish.

589. *Persistent organic pollutants (POPs)*. Following the adoption of the GPA, the GEF Operational Strategy identified among the priority concerns to be addressed under international waters the "control of land-based sources of surface and groundwater pollution that degrade the quality of the international waters", with special emphasis on the "prevention of releases of persistent toxic substances and heavy metals".

590. The Stockholm Convention on Persistent Organic Pollutants, was adopted; in May 2001, it designated GEF as the interim financial mechanism for the Convention. Also in May 2001, the GEF Council approved the first actions designed to support the implementation of the Convention: (a) approval of initial guidelines for enabling activities on POPs, and (b) the joint GEF/UNEP project entitled "Development of National Implementation Plans to Manage Persistent Organic Pollutants", aimed at testing the guidelines in the field and building the capacity of States to meet their obligations under the Convention.

591. As of January 2002, a number of GEF-eligible countries have requested and obtained GEF assistance for the preparation of their national implementation plans for the Stockholm Convention ("enabling activities" in GEF terminology). In several of those countries implementation has already started. The total GEF funding for enabling activities is so far approximately $18 million.

592. The countries involved ensure geographic balance and diversity of characteristics. Each of the pilot countries is to become a regional centre for capacity-building and exchange of experiences. To that end, funds have been allocated specifically to involve neighbouring States in the project with a view towards enhanced coordination, convention ratification and improved quality of the national implementation plans.

593. *Intergovernmental Oceanographic Commission* A number of activities of IOC in the field of marine science are aimed at capacity-building in developing countries. For example, capacity-building continues to be a main component of the Harmful Algal Bloom (HAB) programme. The backbone in the implementation of the capacity-building effort is the IOC Science and Communication Centres on Harmful Algae in Copenhagen, Denmark, and Vigo, Spain, which provide annual training courses for 30 to 40 people, as well as a number of regional training courses. In this context, in IOC/WESTPAC, cooperation with the University of Tokyo on HAB capacity-building plays the same role as does the work of the IOC HAB centres for the international courses. A regional training workshop was also held in Accra, Ghana, in November 2001, which had as an addition the objective formulation of a project for a regional survey of the occurrence of potentially harmful microalgae. Moreover, in September 2001, IOC assisted at a FAO-ROPME training course for the Gulf region in Kuwait. The two IOC HAB centres provide, in addition to the short-term training courses, a mechanism for North-South institutional twinning and cooperative research, and specific projects are ongoing

with countries in South-East Asia, Africa and Latin America. Within WESTPAC, a training course on the ecology and physiology of harmful algae was held in March 2001, with the participation, for the first time, of scientists from the Democratic People's Republic of Korea. The experience obtained will be used by the trainees in designing and conducting research on the ecology and physiology of harmful microalgae in their respective home countries.

594. The regional meetings to advance the development of GOOS, through the exchange of information and experiences among regional member countries and between IOC and the region, also serve to strengthen regional capacity. Such regional meetings were held in 2001 for the Caribbean, Black Sea, South-East Asia, Africa and Indian Ocean regions.

595. The activities under the IOC Committee on Oceanographic Data and Information Exchange (IODE) are in themselves of a capacity-building nature. A good example is the Marine Environment Data Information Referral Catalogue (MEDI), a directory system for data sets, data catalogues and data inventories developed by IODE. Capacity-building is a major priority area of the IODE programme. IODE provides capacity-building assistance at the national level (assisting member States in developing and updating national ocean data and information management facilities) as well as the regional level (e.g. through the development and maintenance of regional ocean data and information management networks such as the Ocean Data Information Network (ODIN)). The capacity-building programme also includes regional training courses, travel and training grants, equipment support, etc.

596. *United Nations Industrial Development Organization.* In its contribution to the present report, UNIDO stated that the transfer of skills and knowledge to member countries through capacity-building, especially institutional strengthening, forms a cross-cutting activity of fundamental importance in each of the three areas of its work: relating to environmental management planning, policy formulation and monitoring; reducing harmful emissions from industry; and pollution control and waste management.

597. UNIDO executes major projects addressing regional transboundary problems of LMEs and their associated river basins, wetlands and coastal zones within the international waters focal area of GEF. These projects bring together Governments of the region and scientists from different disciplines to assess the complex interactions of industrial development and performance with the international waters and to establish baseline conditions against which future actions can be evaluated. Such cooperation provides the solid foundation for fundamental capacity-building and institutional strengthening at national and regional levels, for the setting of appropriate environmental and developmental goals, and for the implementation of priority actions to maintain or restore environmental productive capacity.

598. Of prime importance in these regional projects is involvement and ownership by Governments and the successful cooperation among those Governments participating in the projects. In turn, cooperation at the operational level underpins regional governance structures, enhancing, for example, the implementation of regional seas conventions and, ultimately, UNCLOS.

599. UNIDO attributes much of the success of its Gulf of Guinea Large Marine Ecosystem project to the strong sense of commitment and community of the six participating Government partners. Indeed, that ownership has now generated a successor project drawing in 10 additional Governments to the consortium. This new project will combine new regional marine surveys of the Guinea Current ecosystem with a series of land-based projects demonstrating different approaches to the reduction of pollutant fluxes to those coastal and marine environments.

600. Training and other capacity-building activities undertaken by UNIDO are designed to improve production management by providing managers and supporting service providers with the skills necessary to identify, assess and modify those components of the manufacturing process that generate high demands for raw materials, water and energy resources or that represent the principal sources of wastage and pollution emissions.

601. UNIDO delivers these capacity-building services through demonstration projects, often as part of integrated programmes of industry support to member countries, and through a global network of National Cleaner Production Centres, established jointly with UNEP. Over 20 such centres are in operation worldwide, with a significant number of additional ones in the process of being set up. The centres provide

practical technical assistance and training to industry as well as access to information from the global network of centres and related institutions around the world.

602. Each signatory country to the Stockholm Convention, which seeks to reduce and ultimately eliminate the production and use of the identified organo-halogen chemicals, is expected to undertake so-called "enabling activities", financed by the GEF, leading to the development of a national implementation plan (see also paras. 590-592 above). These activities include the preparation of an inventory of the sources and emissions of POPs and a preliminary assessment of stockpiles of POPs and of waste products contaminated with POPs. An action plan for their careful management, reduction, control or disposal can then be developed. The expertise and long experience of UNIDO with industry has earned it the status of "executing agency with expanded opportunities" with regard to GEF, the financial instrument for the Convention. This status allows UNIDO to assist developing countries and those with economies in transition in preparing and executing the enabling activities and building the capacity necessary to be able to report country progress towards ratification of the Convention. To date, over 50 countries have requested the assistance of UNIDO. The organization is currently assisting developing countries with technical cooperation, training and awareness-raising programmes for industry, information, dissemination, technology transfer, development of innovative financing mechanisms, and development of sound regulatory programmes for emissions control.

603. UNIDO programmes seek to build capacity to deal with a wide range of waste management and pollution control issues among decision makers working in public authorities and industrial and commercial enterprises, including companies in the commercial pollution control and waste management sectors. Such training includes: developing tools and methodologies for identifying and evaluating pollution-control and waste-management options based on technological, risk and compliance criteria and analysis of the waste streams that are collected; financial and economic analysis of waste management options as a precursor to seeking investment; operation of pollution control and waste management technologies; and estimation of demand for services, at the city level for municipalities and at the city, regional, or even national levels for commercial pollution control and waste management sectors. Remediation technologies, such as bio- and phyto-remediation, are also demonstrated at the pilot level to increase awareness and highlight alternative options for pollution control and contaminated land remediation.

604. *Food and Agriculture Organization of the United Nations*. FAO stated that capacity-building, especially institutional strengthening, in developing countries is the key element in facilitating long-term sustainability in the fisheries sector. It is stressed in all aspects of the FAO programme of work in fisheries. Moreover, the 1995 FAO Code of Conduct for Responsible Fisheries explicitly recognizes the importance of enhancing human and institutional capacity and urges action to be taken to that end.

605. FAO gives practical effect to capacity-building, especially institutional strengthening, in a number of different but related ways. It works closely with national fishery administrations, including those in small island developing States, to improve their operational efficiency in management and utilization and in the promotion of sustainable aquaculture. This is achieved through the dissemination of information pertinent to responsible management, and in particular through the preparation of technical guidelines that support the implementation of the Code of Conduct; country visits and the provision of advice on specific issues; and the organization of workshops and professional attachments within FAO.

606. Developing countries face particular challenges in fisheries management owing to the number of international instruments and initiatives adopted since UNCED and the requirement to implement them. Moreover, these instruments contain a number of new concepts and approaches, such as ecosystem management, the precautionary approach, sustainable indicators for management, and catch certification. The implementation of these concepts is crucial for the achievement of responsible fisheries and as a result they are being addressed routinely by FAO in its capacity-building activities.

607. Effective monitoring, control and surveillance (MCS) is an essential part of fisheries management. FAO has an ongoing programme of technical assistance in MCS which, principally through regional workshops, seeks to enhance national MCS capacity while encouraging regional MCS cooperation. FAO

also provides, on a request basis, technical inputs to national MCS programmes.

608. One evident difficulty being faced by a number of fisheries administrations is how to diagnose the situation and a lack of firm advice on what management decisions to apply in the case of a fishery. Certainly MCS can provide information of use to scientists as well as to fishery managers in their assessment of what is happening to a fishery, and on what problems need to be faced so that decisions can be taken. In 2001, a national MCS workshop was held in India, attended by 30 participants from maritime States and associated territories. Issues addressed covered information collection; procedures for inspection onshore and at sea; vessel identification; patrol platforms; gear selectivity; and vessel monitoring systems.

609. FAO is also involved in an MCS project financed by the Government of Luxembourg assisting Senegal, Mauritania, Cape Verde, the Gambia, Guinea-Bissau, Guinea and Sierra Leone. FAO has given its support to the establishment of the International Network for the Cooperation and Coordination of Fisheries-related Monitoring, Control and Surveillance Activities, with a view to promoting the exchange of information on MCS among countries.

610. *United Nations Environmental Programme*. The capacity-building activities in the field of marine environment carried out under the auspices of UNEP are numerous. The Fourth Global Meeting of Regional Seas Convention and Action Plans recommended that regional clustering of activities carried out by global MEAs, Regional Seas Conventions and Action Plans, international organizations and other regional bodies is needed to carry out activities in a more coordinated and cost-effective manner, particularly in areas such as capacity-building, technology transfer, development of supportive national legislation, assessment and monitoring, and public awareness and information exchange. In particular, greater efforts are required to pool resources for developing collective regional technology transfer centres for the protection and sustainable use of the marine and coastal environment in support of regional seas programmes, global MEAs and other international initiatives.

611. Many of the activities under the regional seas programmes of UNEP contribute to capacity-building in the member countries. For example, in PERSGA, in executing the Strategic Action Programme for the Red Sea and Gulf of Aden, mobilized financial resources from GEF and the Islamic Development Bank and technical cooperation from the three executing agencies, UNDP, UNEP and the World Bank. Financing was obtained through the World Bank for a hydrographic analysis of the southern Red Sea for the long-term conservation and management of the coastal and marine resources of the region, with technical cooperation for the project provided by the United Kingdom Hydrographic Office. In a demonstration programme under way to promote sustainable lobster fishing, lobster traps are being made available to replace the gillnets that are currently in use. Two regional fisheries training centres are being upgraded, one in Aden, and the other in Jeddah, Saudi Arabia. Addressing the problems that can arise if methods of surveying species are not standardized, PERSGA developed a set of standard survey methods for key habitats and key species that are being used in studies on coral reefs, mangroves, seagrass beds, marine mammals, turtles and seabirds.

612. A new training course for marine protected area managers has been prepared by PERSGA in association with the TRAIN-SEA-COAST programme of the United Nations Division for Ocean Affairs and the Law of the Sea; the first course was delivered in January 2002. PERSGA is also implementing a pilot project for integrated central zone management in Aden. Under the auspices of PERSGA, new public awareness centres have been established in several countries and provided with equipment and materials, and a public awareness campaign was conducted throughout the PERSGA region in 2001. Several training courses on environmental education have also been held, leading to the establishment of nature conservation clubs in schools in Somalia, the Sudan and Yemen. Furthermore, a social marketing survey was carried out within the region to determine people's attitudes and understanding of environmental issues and a microgrants programme has been prepared to promote community participation in environmental improvement. Under PERSGA, regional capacity in marine sciences has been improved through numerous workshops and training courses, in such areas as basic GIS, shark identification and fisheries data collection methods, principles of biodiversity conservation, standard survey methods for habitats and species, diving, and environmental education.

613. *International Maritime Organization*. Within the United Nations system, capacity-building in maritime infrastructure is the focus of IMO. IMO attaches the highest priority to the need to ensure that the numerous rules and standards contained in its body of treaties are properly implemented. To facilitate this implementation, IMO focuses on the continuous strengthening of regulations to ensure that flag and port States and shipowners develop their capacities and fulfil their responsibility to the fullest. The technical cooperation of IMO has been intensified by the operation of the Integrated Technical Cooperation Programme (ITCP), aimed at ensuring that funds from different donor sources are properly channelled towards the execution of projects under the supervision of IMO as executing agency, with the objective of strengthening the maritime infrastructure of developing countries.

614. In a previous contribution, IMO had reported that the importance of technical assistance to developing countries and the form that such assistance would take are reflected in IMO Assembly resolution A.901(21), entitled "IMO and technical cooperation in the 2000s" (see also A/55/61, paras. 245-246, and A/56/58, para. 561). The resolution urges parties to IMO instruments containing provisions on technical cooperation to respond to their commitments and invites member States to use IMO as a coordination mechanism for technical cooperation in the maritime sector. It also invites member States, the shipping industry and partner organizations to continue and, if possible, to increase their support for ITCP and affirms that ITCP can and does contribute to sustainable development. The resolution also urges IMO to give priority to technical assistance programmes that focus on human resources development, particularly through training and institutional capacity-building.

615. With respect to human resources development, IMO capacity-building activities under ITCP are expected to produce an increased number of trained experts (both male and female) to develop and manage national programmes for maritime safety administration; marine environment protection; the development of maritime legislation; facilitation of maritime traffic; technical port operations; and training of seafarers and shore-based personnel. In the area of institutional capacity-building, activities under ITCP are expected to strengthen public sector departments capable of ensuring the effective exercise of flag State, port State and coastal State jurisdiction.

616. Priority global programmes within the ITCP framework include the development of administrative, legal and technical advisory services to Governments on the implementation of IMO safety and anti-pollution conventions, enhancement of training institutions and provision of fellowships, integration of women in the maritime sector, harmonization of the operation of various regional agreements on port State control, enhancement of maritime safety, prevention and control of illicit drug-trafficking and enhancement of port security. The main constituent programmes foreseen within the ITCP framework include regional programmes for Africa, Arab States/Mediterranean, Asia and the Pacific Islands, the Commonwealth of Independent States and Eastern Europe, and Latin America and the Caribbean.

617. The training of crews of ships is an essential capacity-building measure. The requirements regarding the training of crews which the flag State must implement under article 94 of UNCLOS are those contained in the STCW Convention and the STCW Code (see para. 97).

618. In addition, many of the new instruments adopted by IMO in recent years have capacity-building measures built into them; in many cases, while adopting a convention the conference also adopts a number of resolutions, some of which address capacity-building. For example, a resolution accompanying the recently adopted (5 October 2001) International Convention on the Control of Harmful Anti-fouling Systems on Ships addresses the promotion of technical cooperation related to the ratification, implementation and enforcement of the Convention.

619. IMO also reports that it has, in the course of 2001, developed and executed further measures aimed at supporting capacity-building regarding maritime safety issues falling under the responsibility of maritime administrations.

620. Regarding the enhancement of flag State capabilities to work towards safer shipping, IMO made preparations for the implementation of the second phase of the International Safety Management (ISM) Code, which should become mandatory for all types of ships on 1 July 2002. Assistance was provided to maritime administrations through technical cooperation activities in this regard.

621. In order to assist flag States in the assessment of their capabilities, IMO revised the procedures for the self-assessment of flag State performance to incorporate criteria and performance indicators and invited flag States to collect more detailed information on the authorizations granted to recognized organizations to work on their behalf.

622. Building upon the increased involvement of States, other than the flag States, in the inspection of ships and the investigation of casualties, IMO worked towards the development of a harmonized global regime for port State control activities through renewed support to regional memoranda of understanding on port State control through the training of port State control officers, assistance to port State control committees and the promotion of communication and exchanges of information between flag and port States.

623. Similarly, IMO provided assistance through training activities for the implementation of increased cooperation among substantially interested States in the conduct of investigations into casualties on the basis of a specific model course based on the Code for the investigation of marine casualties and incidents.

624. In identifying some of the safety and marine pollution problems affecting non-convention ships, i.e. those which are not covered by existing international instruments, because of their type or their size or their area of trade, a need for assistance to developing countries was also identified, since these ships constitute the vast majority of the fleets of such countries. IMO, therefore, developed a programme of activities relating to these problems, based on consultancy and seminars, which focused on the East African and Maghreb regions in the course of 2001.

625. *United Nations University*. The capacity-building activities of UNU with respect to multilateral environmental agreements are developed under a strategic "Inter-linkages Initiative", the underlying concept of which is that sustainable development requires an approach that promotes greater interlinkage between ecosystems and societal actions. The initiative consists of two fundamental elements: synergism and coordination. On a practical level this involves greater cohesion among institutional, environmental issue-based, and development-focused responses to the challenges of sustainable development.

626. UNU views capacity-building as affecting not only the level of response and effectiveness of implementation of multilateral environmental agreements, but also the level of negotiation and ratification capability of countries. Capacity-building at the thematic and institutional levels is addressed. The thematic approach is followed so as to ensure the synergies that exist in particular areas, such as the cluster of multilateral environmental agreements relating to oceans, are identified and utilized. The institutional approach is followed, ensuring that knowledge and capacity are not only developed and transferred but also sustained.

627. The UNU Fisheries Training Programme offers six-month postgraduate training in six fisheries and fisheries-related fields in Iceland, covering fishery policy and planning, marine and inland water resource assessment and monitoring, and environmental assessment and monitoring. The programme started in 1998 and is offered annually. It has grown gradually from 6 participants in the first year to 14 in 2001. To date, a total of 43 participants from 15 countries have completed the training.

628. Participants are from developing countries with considerable fisheries potential (nationally or provincially) who are already working as professionals in their disciplines. The training in Iceland is practical in its approach and tailored to suit the needs of the individual participants. After a six-to-seven week introductory course, the fellows undergo specialized training in their fields. This part consists of a five-week structured course followed by a project and work attachment. The programme is run in cooperation with several institutions and universities in Iceland, under the coordination of the Marine Research Institute in Reykjavik. (More information about the programme can be obtained at www.hafro.is/unuftp/.)

629. UNU adds that the activities at the UNU Centre are most relevant to the topic of "Marine resources, the marine environment and sustainable development" within the framework of UNCLOS. Capacity-building is central to these activities, which primarily focus on management of coastal resources and the control of land-based sources of pollution.

630. Of note is the UNU project entitled "Environmental Monitoring and Governance in the East Asian Coastal Hydrosphere". One of the major components of the project deals with monitoring of the pollution of marine and coastal environments from land-based sources of endocrine disruptor chemicals.

Monitoring is conducted in the coastal waters off nine East Asian countries, namely China, Indonesia, Japan, the Republic of Korea, Malaysia, Singapore, Thailand, Viet Nam and the Philippines. Significant capacity-building for coastal monitoring has been included in the project. The monitoring programme has clearly indicated an increasing trend in pollution from land-based sources, particularly pesticides and herbicides from agricultural sources. Urban areas also are major contributors to this pollution. Some encouraging signs of decreasing DDT levels in coastal areas have also been observed in the region, which indicates an improved control of DDT application in East Asia. A comprehensive GIS-based database of the monitoring data, called LandBase, has been developed for data coordination and dissemination, and can be accessed at http://landbase.hq.unu.edu/.

631. *International Atomic Energy Agency.* IAEA states that its Marine Environment Laboratory responds regularly to requests for technical assistance. It has recently developed strategies to apply nuclear techniques to address coastal zone management issues. In particular, projects using nuclear techniques have focused on quantifying the rates of coastal ocean processes and understanding the distribution and transport of contaminants in the near-shore environment. New technical cooperation projects are being initiated which greatly improve the ability to assess the problem of harmful algal blooms and their impact on aquaculture and on the overall health of seafood consumers.

632. *United Nations Division for Ocean Affairs and the Law of the Sea.* The Hamilton Shirley Amerasinghe Memorial Fellowship Programme is a major part of the capacity-building activities of the United Nations Division for Ocean Affairs and the Law of the Sea. The Fellowship was established in 1982 in memory of the late President of the Third United Nations Conference on the Law of the Sea. It is administered by the Division and is a component of the United Nations Programme of Assistance in the Teaching, Study, Dissemination and Wider Appreciation of International Law. The programme encompasses all training and fellowship programmes of the United Nations and of UNESCO in the field of international law and is coordinated by the Office of Legal Affairs of the United Nations.

633. The Fellowship is intended primarily to improve the expertise of government officials, research fellows or academics who are involved in law of the sea or marine affairs. It assists the successful candidates in acquiring additional knowledge of UNCLOS in order to promote its wider appreciation and application and enhance specialized experience in those fields. Since the inception of the Amerasinghe Memorial Fellowship Programme, 16 Annual Fellowships and 4 Special Fellowships have been awarded. The recipients of the Fellowship come from 15 developing countries and two countries in transition, including 8 small island developing States and 2 landlocked countries, representing all the developing regions of the world, as well as the States with economies in transition. An informal survey has shown that the enhanced capacity of Fellowship recipients is being utilized for the purposes of addressing marine-related issues in their own countries.

634. In December 2001, upon the recommendation of the High-level Advisory Panel, Mr. Kamran Hashemi of the Islamic Republic of Iran, was given the Sixteenth Annual Fellowship award and Mr. Boris Danailov of Bulgaria was granted the Fourth Special Fellowship award, funded by a grant from the United Kingdom of Great Britain and Northern Ireland.

635. Information regarding the participating universities and the membership of the High-level Advisory Panel, may be obtained from press release SEA/1728 as well as from the web site of the United Nations Division for Ocean Affairs and the Law of the Sea, at www.un.org/Depts/los/HSA.htm.

636. Another important part of the Division's capacity-building activities is its TRAIN-SEA-COAST (TSC) programme. The programme was developed as part of a system-wide training strategy that emphasizes: (a) building up permanent national capabilities for training; (b) sustainability of training efforts; (c) cost-effectiveness; (d) responsiveness to specific training priorities of the countries involved; (e) transfer of experience and sharing of training resources; and (f) long-term impact.

637. The basic objective of the TSC programme is to create capacity at the local level to produce high-quality training courses to be shared among the TSC members, and at the same time to strengthen local institutions to become centres of excellence on training at the national or regional levels. (For more details about the programme, see A/56/58, paras. 579-585.)

638. In 2001, two training courses were successfully delivered and validated according to the TSC standards. They were tailored to and delivered within the framework of two GEF international waters projects, namely, the Benguela Current Large Marine Ecosystem (BCLME) programme and the Strategic Action Programme for the Red Sea and the Gulf of Aden. A total of 20 individuals from South Africa, Angola and Namibia participated in a course on marine pollution control developed by the TSC Benguela Current Course Development Unit, in Cape Town, South Africa. The course was designed to provide technical knowledge and specific skills to environmental officers, government officials and environmental specialists from the BCLME countries. A total of 23 individuals from Djibouti, Egypt, Eritrea, Jordan, Saudi Arabia, Somalia, the Sudan and Yemen participated in a one-week course on management of marine protected areas. The course was developed by the TSC Red Sea Course Development Unit in Port Sudan. The objective was to provide current and future marine protected area managers in the Red Sea and Gulf of Aden region with an array of knowledge, skills and approaches for marine protected area planning and management.

639. For 2002, the planned activities under the TSC programme include the delivery of seven training courses prepared by GEF-associated Course Development Units. Other non-GEF-associated TSC Course Development Units will also deliver new courses. The TSC Central Support Unit at the Division will present a Course Developers Workshop in March to reinforce existing TSC units through the training of new course developers. It is expected that a number of training courses will be shared, adapted and delivered between TSC units during 2002.

B. Regional cooperation and coordination

640. "The advantages of regional cooperation and organization are threefold ... : first of all, the regional sea approximates most closely what is now called the 'large marine ecosystem' (LME), and this facilitates fisheries management as well as pollution control from most sources. Second, the regional level offers economies of scale, facilitating, among other things, the advancement of marine scientific research and the development and transfer of technologies. Third, the States bordering regional seas often have developed a commonality of interests. This may facilitate the advancement of regional security, through the kind of cooperation required for the suppression of piracy and other crimes at sea."[205] Additional advantages of a regional approach include the mobilization of synergies among various marine and coastal sectors within a region and the realization of benefits from twinning of the region with a more advanced region, which in turn furthers international cooperation.

641. The advantages of a regional approach in ocean affairs are so evident that both UNCLOS and Agenda 21 have respectively enshrined regional cooperation in hard law and soft law, especially in relation to the conservation and management of marine living resources, the protection and preservation of the marine environment, the development and transfer of marine science and technology, and responses to emergencies at sea. Likewise, the international instruments and the plans of action that emanated from UNCLOS and Agenda 21 prescribed or recommended a regional approach in many instances; special mention can be made of the 1995 Fish Stocks Agreement, the Convention on Biological Diversity and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

642. In fact, the regional approach in ocean affairs had been pursued by States and international organizations at the global and the regional levels even prior to the conclusion and adoption of UNCLOS. A number of regional fisheries management organizations or arrangements, regional seas programmes (dealing with the marine environment), regional marine science organizations as well as regional organizations dealing with regional cooperation in marine affairs in general were already in existence before the advent of the Convention. But in the past 20 years, the growth of regional programmes and regional organizations in the field of ocean affairs has been phenomenal.

643. Within the United Nations system, under the auspices of the UNEP, there are currently 13 regional seas programmes in operation, and an additional one is currently under development (for a list of UNEP regional seas conventions and protocols, see A/56/58/annex V). Four regional seas organizations which were developed independently are today working closely with UNEP. (For details of the work carried out under the regional seas programmes, see paras. 445-464.) FAO has developed five regional fisheries management organizations or arrangements

while there are 23 non-FAO regional fisheries bodies. (For a list of regional fisheries management organization and arrangements, see A/56/58, annex IV.) Recently, periodic joint meetings have been held among them. (For details of the work of regional fisheries bodies, see paras. 185-191). There are 11 regional bodies dealing with marine science under the auspices of IOC. Although IMO does not have any formal regional body, a number of its programmes and projects are implemented at the regional level. The regional commissions of the United Nations themselves have marine and coastal programmes involving the member countries in their respective regions. Outside the United Nations system, but in many cases working closely with it, there are a number of regional marine organizations, especially in the South Pacific and the Caribbean.

644. It is to be noted that the second meeting of the Consultative Process highlighted "a need to establish or strengthen, as appropriate, regional cooperation, including that between regional fisheries organizations and arrangements, regional seas programmes and other regional marine environment bodies ... and the regional marine science organizations, including those under the auspices of the Intergovernmental Oceanographic Commission" (A/56/121, part A, para. 6). Although this need was mentioned in relation to ensuring an intersectoral approach to marine scientific research, it is applicable to all marine and coastal fields, especially the sustainable development of oceans and seas and their resources.

645. The contribution of the South Pacific Applied Geoscience Commission (SOPAC) to the present report exemplifies the application of the regional approach in overall ocean affairs, with emphasis on sustainable marine development. With a view to facilitating the deliberations of the General Assembly and the Consultative Process on the cross-cutting issue of regional cooperation and coordination in ocean affairs, SOPAC's contribution is presented in its entirety in annex II to the present report.

C. Integrated ocean management

646. "The Law of the Sea Convention provides for the first time a single Convention of such a comprehensive and diverse nature which, in one stride, has brought about changes of such complexity and magnitude that national Governments have been required to formulate new policy, review their marine-related legislation and make new administrative arrangements. ... The complexity of the Convention and the regime governed by it involves an interplay between rights and duties, and there is a need for a comprehensive approach."[206]

647. The need for a management approach to ocean affairs and for ocean management to be of an integrated nature is also underscored in chapter 17 of Agenda 21, which devotes the very first programme area to "Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones". The General Assembly in its annual resolution on "Oceans and the law of the sea" also calls for such an approach.

648. There is a vast literature on integrated ocean management, and it is defined and applied in various ways. The central element is moving away from a fragmented, sectoral and unidimensional approach to the development and implementation of overall policy and a management strategy. In doing so, there is not only a synthesis of national priorities, but also an integration of the marine dimension with overall national policy, taking into account the interdependence of environment and development and the complex interplay between national interests and concerns and rights and duties in the international context. The decision-making and implementation processes should involve all stakeholders, usually in a vertically integrated framework, from the bottom up. Finally, there is spatial integration across all maritime areas under the jurisdiction of a State, combining coastal areas and maritime zones, and in many cases, watersheds, river basins and sea areas.

649. The challenges of developing and applying integrated ocean management cannot be overstated. In most cases, the limiting factor is capacity, but in many cases, the obstacles are at the conceptual or political level. Yet the imperatives of an integrated management approach are so overwhelming that in spite of the daunting problems of full integration, there is a growing movement towards achieving some degree of integration.

650. In its contribution to the present report, IOC has provided information about its integrated coastal area management (ICAM) programme. The ICAM programme is intended to assist IOC member States in their efforts to build marine scientific and techn- ogical capabilities in the field of integrated

coastal area management as a follow-up to Agenda 21, chapter 17, and to help to ensure that marine sciences are integrated into the development of national and regional ICAM programmes and plans, particularly in assisting, through the exchange of experiences, in developing a trans-sectoral decision-making process and the corresponding institutions for the sustainable development of coastal areas.

651. The objectives of the ICAM programme are to address coastal zone problems through activities of a more cooperative, coordinated and interdisciplinary nature and ensure good coordination among existing IOC efforts related to the coastal zone. The programme also aims to provide a mechanism to promote interaction between IOC programmes related to ICAM and those of other international organizations between marine natural scientists and social scientists, as well as between scientists and coastal managers and policy makers. After several years of wide practice around the world, ICAM is in a position to attempt to codify these practices into methodological tools. Following the publication by IOC of the first *Methodological Guide on Integrated Coastal Management* in 1997, a second methodological manual was published in 2001, entitled *Steps and Tools towards Integrated Coastal Area Management*. While the first edition mainly focused on the use of natural science tools, in particular the process of building up an information system, the 2001 edition emphasizes and integrates the socio-economic aspects of ICAM. The ICAM planning steps and cycle are described and analysed in detail through a number of selected case studies with practical recommendations for ICAM operators and managers.

652. In terms of full integration, recent developments in three countries — Australia, Canada and South Korea — can offer valuable insight and guidance.

653. Australia's development of an ocean policy was driven by two underlying motives: to assert its sovereign rights over its exclusive economic zone and to ensure the ecologically sustainable development of the nation's ocean resources, both for wealth creation and environmental protection. In addition, there has been an intrinsic need for efficient coordination of the nation's utilization of the oceans given the broad range of sectoral agencies having responsibilities for various aspects of its planning and management.

654. Australia's oceans policy commits the Government to implement it through an integrated and ecosystems-based ocean planning and management system aimed at ensuring the maintenance of ecological processes, biological diversity and viable functioning populations of native species. The ecosystems-based approach is to be implemented through a regional marine planning process outlined in the policy, with the aim of improving linkages between different sectors and across jurisdictions. These regional marine plans are based on large marine ecosystems derived from the Interim Marine and Coastal Regionalization for Australia. A national system of marine protected areas is to be the major component of the implementation.

655. While Australia has proceeded along a policy pathway for the development of its oceans policy and implementing it through a regional marine planning process, Canada has proceeded along a legislative pathway, with the proclamation of the Oceans Act in 1997, as a precursor to the development of an oceans management strategy that is to be implemented through integrated management plans.

656. The objective of the Oceans Act is to establish a framework for ocean resource management and marine environmental protection in Canada by defining the ocean areas that Canada proposes to manage and protect; establishing guiding principles and assigning the authority to negotiate partnerships for the development of an oceans management strategy; and consolidating and defining some oceans programmes to improve the effectiveness of Canada's conservation and protection initiatives.

657. The Oceans Management Strategy section of the Oceans Act outlines a new approach to managing oceans and their resources. The concept is based on the premise that oceans must be managed as a collaborative effort among stakeholders and that ocean management should be based on the principles of sustainable development, integrated management of activities occurring in or effecting oceans, and the precautionary approach.

658. The Republic of Korea has proceeded along an institutional reform pathway by establishing the Ministry of Marine Affairs and Fisheries in 1996, thus integrating the ocean-related functions from 10 government authorities in order to ensure consistent and effective marine policy.

659. Three major factors have shaped the Republic of Korea's marine policy: the geopolitical situation of the

country and its ocean-borne trade strategies; the lack of land area and natural resources which spurred the country to put more emphasis on maritime policy; and the continuous prominent position occupied by marine policy since the mid-1960s, though it was since 1982 that emphasis has been placed upon the expansion of national interests from coastal seas to pelagic oceans, environmental concerns in coastal areas as a result of massive coastal reclamation, landfilling, increased coastal uses and sporadic oil-spill accidents, and governmental reforms on deregulation, liberalization and globalization.

660. Beginning with its early efforts in defining an approach to ocean governance, the Republic of Korea has been searching for an influential and permanent organizational device for providing policy direction, high-level inter-ministerial coordination to harmonize the disparate goals and programmes of existing agencies, and more authority in order to raise the profile of marine affairs. The current Ministry of Marine Affairs and Fisheries integrates almost all marine administrations into one "super-agency".

XI. International cooperation and coordination

661. The advantages, and in some cases the inevitability, of international cooperation and coordination for the effective implementation of the international regime for the oceans established by UNCLOS prompted the framers of the Convention to include specific provisions relating to international cooperation and coordination in various parts of the Convention. In its chapter 17, in addition to devoting an entire programme area to "Strengthening international, including regional, cooperation and coordination", Agenda 21 identified activities relating to "international and regional cooperation and coordination" under all seven programme areas.

662. Emphasis on international cooperation and coordination in ocean affairs was placed, inter alia, by the Commission on Sustainable Development in its deliberations and decisions, by the Consultative Process in its work and recommendations, and by the General Assembly in its debates and resolutions. In fact, the mandate of the Consultative Process includes "suggesting particular issues to be considered by [the General Assembly], with an emphasis in *identifying areas where cooperation and coordination at the intergovernmental and inter-agency levels should be enhanced*" (General Assembly resolution 54/33, para. 2, emphasis added).

663. While cooperation at the intergovernmental and inter-agency levels, especially at the levels of tasks, projects or even programmes, has been and continues to be quite effective, in many cases because of the very nature of the activities, the issue of coordination, in particular in relation to overall ocean affairs management and governance, requires serious consideration. The issues in this context are similar to those faced by integrated ocean management (see para. 649). While frameworks for coordination are provided by UNCLOS in a legislative context and by chapter 17 of Agenda 21 in a programmatic context, putting these frameworks into effect poses major challenges: the nature and degree of coordination in ocean affairs at the national level, which is considered to be a sine qua non for coordination at the international levels; attitudes towards internationalism and, more importantly, towards coordination with extra-national entities; acceptance of the frameworks of UNCLOS and chapter 17 of Agenda 21 as the basis for actions at the national and international levels; allocation of resources to achieve coordination; and functioning of effective mechanism(s) for coordination. It is interesting to note that almost all these challenges prevail in the case of inter-agency coordination in ocean affairs, albeit mutatis mutandis.

664. For the agencies within the United Nations system, the challenges have been exacerbated recently with the discontinuation of the Subcommittee on Oceans and Coastal Areas of the Administrative Committee on Coordination.

A. International cooperation: existing programmes

665. As pointed out in the 2000 annual report (A/55/61, para. 280), in the field of ocean affairs and the law of the sea, formal as well as informal cooperation is quite extensive among the organizations of the United Nations system, in many cases extending to other intergovernmental bodies, government agencies, the private sector, non-governmental organizations and stakeholders in the widest sense. For example, the CMS secretariat reports that in July 2000 it signed a Memorandum of Understanding with the

secretariat of the International Whaling Commission. The Memorandum of Understanding, which builds upon already well-established collaborative linkages between the two secretariats, aims to provide a formal framework for future collaboration. It deals with aspects such as institutional linkages, the regular exchange of information, cooperation in the preparation of documents where applicable and coordination of the respective programmes of activities. The CMS secretariat adds that collaboration with UNEP regional seas conventions and action plans has been limited to date owing mainly to a lack of capacity. The most active cooperation has been with the Mediterranean Action Plan. There is scope for extending cooperation in other regions, particularly Latin America and the Caribbean, East Asia and Africa. IUCN has been a collaborator in many of the projects undertaken to date with sponsorship from CMS.

666. In its contribution to the present report, WMO re-emphasized the nature of the new Joint Technical Commission for Oceanography and Meteorology (JCOMM), an intergovernmental body established recently as a constituent body of WMO and IOC to coordinate and regulate the provision of meteorological and oceanographic services worldwide and coordinate and guide an operational ocean-observing system to support those services as well as global climate monitoring, research and prediction (see also para. 547). According to WMO, JCOMM represents a new paradigm in inter-agency cooperation in the United Nations system, in which two agencies are pooling resources and expertise in support of a more efficient, multidisciplinary approach to addressing an identified global requirement. Significantly, both agencies have not only obtained mandates from their respective governing bodies, but have also obtained approval of budgetary provisions. JCOMM is expected to lead to enhanced efficiency and cost-effectiveness at the intergovernmental institutions dealing with meteorology and oceanography. It has already spurred coordination at the national level as well, among the oceanographic and the meteorological communities.

667. In their contributions to the present report, the respective organizations have provided information about a wide range of cooperative and collaborative projects and programmes at the international level, most of which have also been described in the previous reports on oceans and the law of the sea. At the second meeting of the Consultative Process, delegations themselves enumerated a number of cooperative international projects and programmes relating to oceans and seas (see A/56/121, part B, para. 65). These include: the IOC programme on the international exchange of data and information; GOOS, a cooperative programme of States and the organizations of the United Nations system and the related Argo project; the Global International Waters Assessment (GIWA); the efforts of FAO relating to information on status and trends with respect to fisheries and marine living resources, including the development of an international plan of action and assistance in national capacity-building in fishery statistics; the IOC-WMO Joint Technical Commission on Oceanography and Marine Meteorology; the development and implementation jointly by UNIDO and the United States of America of GEF-supported ecosystem-based international waters projects involving 16 countries in Africa; the United Nations University Fisheries Training Programme for practising professionals from the fisheries sectors in developing countries; the European Union (EU) Programme for Scientific and Technological Cooperation with Developing Countries and, within its framework, research on oceans and seas by the Research and Development Programme of EU (INCODEV); the multilateral programme, Census of Marine Life, to assess and explain the diversity, distribution and abundance of marine life in the world's oceans, and its component, Ocean Biogeographic Information System (OBIS), designed to be an online, worldwide atlas of marine life; existing regional and global mechanisms to promote the access of developing countries to science and technology; regional cooperation along the lines of active scientific cooperation in the North-East Atlantic within the International Council for the Exploration of the Sea (ICES); training and technical assistance available in developed States, for example, the United States, including educational and training programmes, fellowships and scholarships, clearing houses, databases and web sites; the Canadian International Development Agency's "Strategy for Ocean Management and Development"; Norway's programme of assistance in developing national regulations relating to the conduct of marine scientific research in waters under national jurisdiction and its contribution to the trust fund for facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf by developing States; and the

International Marine Projects Activity Centre (IMPAC) of the Cooperative Research Centre for the Great Barrier Reef World Heritage Area of Australia, facilitating cooperation in the areas of fisheries management, coastal planning, management and research, and policy development for oceans governance.

668. *Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP)* is one important cooperative body within the United Nations system. Constituted in 1969 under an inter-agency Memorandum of Agreement, GESAMP is an expert scientific advisory body within and supported by the United Nations system, namely by: the United Nations through its Division for Affairs and the Law of the Sea of the Office of Legal Affairs, UNEP, UNESCO/IOC, FAO, WHO, WMO, IMO and IAEA. Its principal task is to provide scientific advice to the sponsoring agencies concerning the prevention, reduction and control of the degradation of the marine environment. The annual reports of GESAMP and the reports of its working groups thus represent substantial contributions to the technical work of the sponsoring agencies under their respective mandates and programmes of work, including in relation to the implementation of chapter 17 of Agenda 21.

669. As noted in the previous report of the Secretary-General on oceans and the law of the sea (A/56/58/Add.1, paras. 132 and 133), at its thirty-first session, in August 2001, GESAMP considered the final report of the independent evaluation team that it had established at its thirtieth session to recommend ways to make it more effective, more inclusive and more responsive to emerging problems and to the needs of policy makers and decision makers. At the session, following considerable discussion, GESAMP responded positively and constructively to the evaluation team's recommendations, some of which contained substantial financial implications.

670. Follow-up actions have since been undertaken, among them, to date, the convening of a GESAMP Intersecretariat meeting at WHO headquarters in Geneva, on 7 and 8 February 2002, the main purpose of which was to develop the key elements of a new framework for GESAMP in response to the evaluation team's recommendations. The meeting was convened following a very extensive exchange of information and ideas among the GESAMP Intersecretariat, comprising the Technical Secretaries and the IMO Administrative Secretary, and encompassing the input of the GESAMP Chairperson and Vice Chairperson. In addition to the Technical Secretaries, the GESAMP Chairperson and Vice Chairperson and two other participants from WHO and FAO, the meeting was attended by Mr. Magnus Johannesson (Iceland) and Mr. Chris Tompkins (United Kingdom) attended the meeting on the second day in an observer capacity.

671. In the light of an exchange of views on the future functions of GESAMP, and in particular whether it should continue to prepare periodic reviews and assessments of the state of the marine environment, the meeting formulated three goals/functions for GESAMP, as follows: (a) at the request of one or more sponsoring agency or Government, to conduct sectoral/topic-specific assessments and scientific syntheses, ensuring that there is an interdisciplinary review and endorsement of those assessments; (b) to provide advice and an oversight capability relative to the monitoring and assessment and related activities being carried out by the sponsoring agencies, considering, in particular, ways in which the agencies and Governments can interact and cooperate in these assessments, integrate and synthesize their results and contribute to global assessments of the state of the marine environment; and (c) to address the scientific aspects of new and emerging issues regarding marine environmental protection that are of concern to the sponsoring agencies and/or Governments.

672. Most attention was given to the second goal, assigning an oversight capability to GESAMP relative to monitoring and ocean assessment activities carried out by the United Nations agencies. It was considered that the agencies should confirm that they needed such an oversight capability and also that the needs of agencies should be based on the needs of Governments. It was suggested that GESAMP, in its oversight role, should prepare succinct annual reports on the coordination between agencies on their assessment activities and submit these reports, inter alia, to all United Nations agencies involved in marine assessments, the Secretary-General of the United Nations and the Consultative Process. It was unclear how the outcome of the UNEP feasibility study for establishing a regular assessment process might influence the further development of the role of GESAMP as defined in the second goal. The governmental observers expressed the view that, irrespective of the outcome of the UNEP feasibility

study, GESAMP should play a role in global assessments as formulated, and that the ideas developed at the meeting would be a valuable input for the next stage of the feasibility study, i.e. the UNEP Technical Workshop (Bremen, Germany, 18-20 March 2002).

673. Among other issues, the meeting assessed the process for the selection of GESAMP experts; funding arrangements for GESAMP; the involvement of Governments; membership of GESAMP working groups; and the GESAMP web site. It also conducted a review of the recommendations of the GESAMP evaluation team for the purpose of developing a GESAMP "business plan" encompassing all aspects of the recommendations.

674. It is quite clear from an analysis of the existing cooperative arrangements that, through cooperation, coordination in relation to the scientific aspects of the world's oceans and seas is also being achieved to a large extent. However, while dealing with administrative, legal and developmental issues, coordination still remains a challenge.

B. Mechanism(s) for international coordination

675. In 1993, the Administrative Committee on Coordination (ACC), acting on a proposal of the Inter-Agency Committee on Sustainable Development, established the Subcommittee on Oceans and Coastal Areas (SOCA),[207] with the purpose of meeting the coordination needs defined in chapter 17 of Agenda 21.

676. Those needs, as elaborated in various sections of chapter 17 of Agenda 21, are quite extensive. In particular, under the heading "Strengthening international, including regional, cooperation and coordination", chapter 17 sets out a number of objectives, among them, to "promote the effective operation of coordinating mechanisms for the components of the United Nations system dealing with issues of environment and development in marine and coastal areas, as well as links with relevant international development bodies." (para. 17.116 (d)).

677. Among the management-related activities enumerated to serve this end, the Secretary-General, the agencies and organizations are requested to: "strengthen coordination and develop improved arrangements among the relevant United Nations organizations with major marine and coastal responsibilities, including their subregional and regional components"; "improve representation of United Nations agencies dealing with the marine environment in United Nations system-wide coordination efforts"; and "promote, where necessary, greater collaboration between the United Nations agencies and subregional and regional coastal and marine programmes." (para. 17.117).

678. At its session at United Nations Headquarters, on 27 and 28 October 2000, ACC decided to establish two high-level committees, the High-Level Committee on Management (HLCM) and the High-Level Committee on Programmes (HLCP), and mandated them, inter alia, to undertake a review of the ACC subsidiary machinery that should be zero-based: the review should take as its starting point what needed to be done rather than what was currently being done; permanent bodies should be kept to a minimum and their retention should be based on rigorous criteria. In introducing the item, the Secretary-General noted that ACC would, through the establishment of High-Level Committees, have the pillars in place that would enable it to concentrate on strategic issues, a main objective that had moved the review forward. The Secretary-General noted further that a third key element towards this objective was the consolidation of the ACC secretariat, and emphasized two main considerations in this regard. One was to ensure that, without prejudice to current procedures and the provision of dedicated services to the different inter-agency committees, ACC could count on coherent and well-coordinated support from both United Nations Headquarters and the United Nations Office at Geneva. The second was to consolidate secretariat capacities to promote a more effective exchange and dissemination of comprehensive information on the work of the system and to maximize support for the "task manager" and "lead agency" approaches that should guide the functioning of the reformed ACC machinery.[208]

679. In his most recent report on oceans and the law of the sea (A/56/58/Add.1, para. 128), the Secretary-General, in discussing the results of the deliberations of SOCA at its eleventh session (United Nations Headquarters, 3-4 May 2001), noted the view of the Subcommittee that "international coordination and cooperation is of vital importance in addressing all aspects of oceans and coastal areas. The cooperation between the relevant parts of the United Nations Secretariat for the purpose of ensuring better

coordination of United Nations work on oceans and seas is thus considered imperative. The existence of a mechanism such as ACC/SOCA is needed". The Subcommittee had also expressed its conviction that the most productive course of future action lay in "building on existing mechanisms through innovative and more integrated approaches for effective coordination and cooperation".

680. At its fifty-sixth session, the General Assembly also considered the report on the work of the second meeting of the United Nations Open-ended Informal Consultative Process established by the General Assembly in its resolution 54/33 in order to facilitate the annual review by the Assembly of developments in ocean affairs (A/56/121) in which it was suggested "that the General Assembly should continue to invite the Secretary-General to include in his annual report on oceans and the law of the sea material on the progress of the processes of collaboration and coordination between the relevant parts of the United Nations Secretariat and the United Nations system as a whole, as described in paragraph 8 of resolution 54/33 and paragraph 42 of resolution 55/7" (ibid., part A, para. 70).

681. Furthermore, in its resolution 56/12 on "Oceans and the law of the sea", adopted on 28 November 2001, the General Assembly requested the Secretary-General "to ensure more effective collaboration and coordination between the relevant parts of the Secretariat of the United Nations and the United Nations as a whole, in particular in ensuring the effectiveness, transparency and responsiveness of the mechanism for coordination on ocean issues" (para. 49).

682. At its session in 2001 held at United Nations Headquarters on 19 and 20 October, ACC, in carrying out its review of its subsidiary bodies in light of the report its High-Level Committee on Programmes,[209] "concluded by endorsing the view ... *that all existing subsidiary bodies should cease to exist by the end of the year, and that future inter-agency support requirements of HLCP would best be handled through ad hoc, time-bound, task-oriented arrangements, using a lead agency approach, or by addressing requests to existing inter-agency networks or expert groups*. The Secretary-General requested HLCP to finalize expeditiously its review on that basis. In supporting the general approach to coordination favoured by HLCP, ACC reaffirmed its decision that the review of the subsidiary machinery should be zero-based. *It decided to move away from the concept of permanent subsidiary bodies with fixed periodicity of meetings and rigid reporting requirements, and, instead, to rely increasingly on ad hoc, time-bound and task-oriented coordination arrangements*. At the same time, ACC recognized the need for a number of inter-agency bodies to pursue their coordination work as expert bodies rather than as subsidiaries of ACC. Such expert bodies should also function on a task-oriented basis, using lead agency arrangements. It was noted that lead agency arrangements were an effective means of strengthening inter-agency consultative processes, instilling a greater sense of ownership, tapping the relevant competences of the system, and enhancing the substantive content of inter-agency cooperation".[210]

683. In the light of that decision, the members of the now defunct SOCA have engaged in substantial dialogue regarding the most effective approach to inter-agency cooperation and coordination within the new framework set out by ACC (CEB).[211] Arrangements to that end are a priority concern, for the members, in view of a number of ongoing projects that are being carried out under the Subcommittee's auspices, inter alia, such task-oriented projects as the United Nations Atlas of the Oceans, the role of the Subcommittee in the implementation of the GPA, and preparations for the World Summit on Sustainable Development. In addition, there are other issues relating to the implementation of UNCLOS and chapter 17 of Agenda 21 that had not yet been addressed by the Subcommittee. It is expected that the former members of the Subcommittee would meet informally in conjunction with the third meeting of the Consultative Process.

684. In its contribution to the present report, FAO observed that ACC/SOCA had been highly beneficial in dealing with ocean matters requiring broader inter-agency policy discussion and joint implementation. That need remains. However, since a decision has been taken to terminate this coordinating mechanism, its functions should be continued through other mechanisms. Output-based ad-hoc mechanisms have been suggested and could be useful for projects requiring interaction to implement very specific projects (e.g., the Atlas technical meeting implementing the United Nations Atlas of the Oceans). For more policy-orientated debates, the use of ICSPRO, which had been dormant after the creation of

ACC/SOCA, with adequately revised terms of reference, might be considered an option.

685. In the view of FAO, enhanced coordination by countries at the national level will be useful so that delegations participating in meetings of different United Nations agencies will have consistent and mutually reinforcing positions on issues (e.g., between fisheries and maritime/shipping matters as they pertain to the operation of fishing vessels).

686. FAO furthermore suggested the establishment of a funding mechanism and related administrative and financial rules that would enable different United Nations agencies to contribute to and participate in jointly funded activities. Such a mechanism does not exist at present and it was felt that the absence of such a mechanism acts as an obstacle to the implementation of cooperative activities among agencies, even in cases where funds are available.

C. Review by the General Assembly of developments in ocean affairs: United Nations Open-ended Informal Consultative Process established by the General Assembly in its resolution 54/33 in order to facilitate the annual review by the Assembly of developments in ocean affairs

687. The General Assembly, by its resolution 54/33 of 24 November 1999, decided to establish an open-ended informal consultative process in order to facilitate, in an effective and constructive manner, its own review of overall developments in ocean affairs. In this connection it should be noted that, at its fifty-seventh session, the General Assembly intends to review the effectiveness and utility of the Consultative Process.

688. Consistent with the legal framework provided by UNCLOS and the goals of chapter 17 of Agenda 21, the Consultative Process discusses the annual report of the Secretary-General on oceans and the law of the sea and suggests particular issues to be considered by the General Assembly, with an emphasis on identifying areas where coordination and cooperation at the intergovernmental and inter-agency levels should be enhanced.

689. Thus far, the Consultative Process has held two meetings, one in 2000 and another in 2001. The third Meeting of the Consultative Process will be held from 8 to 15 April 2002.

690. The second Meeting of the Consultative Process was held at United Nations Headquarters from 7 to 11 May 2001. Pursuant to paragraph 3 (e) of General Assembly resolution 54/33 and after consultations with Member States, the President of the General Assembly reappointed Tuiloma Neroni Slade (Samoa) and Alan Simcock (United Kingdom of Great Britain and Northern Ireland) as Co-Chairpersons of the second Meeting of the Consultative Process (see A/56/58/Add.1, paras. 138-142).

691. At the fifty-sixth session of the General Assembly, during the general debate on agenda item 30 (a), entitled "Oceans and the law of the sea", delegations expressed appreciation for the work of the second Meeting of the Consultative Process and were in general agreement that since its establishment only two years earlier it had become invaluable, especially as regards the informal consultations conducted in preparation of the General Assembly resolution.

692. The two resolutions adopted by the General Assembly on 28 November 2001 (resolutions 56/12 and 56/13) incorporate many of the issues discussed at the first and second meetings of the Consultative Process. These issues were, inter alia, the need for capacity-building for the implementation of UNCLOS; transfer of marine science and technology; coordination and cooperation in combating piracy and armed robbery at sea; the problems of illegal, unreported and unregulated fishing; and protection and preservation of the marine environment, marine resources and sustainable development.

693. In paragraph 48 of its resolution 56/12, the General Assembly recommended that the third Meeting of the Consultative Process, to be held at United Nations Headquarters from 8 to 15 April 2002, should organize its discussions around the following areas of focus: (a) protection and preservation of the marine environment; and (b) capacity-building, regional cooperation and coordination, and integrated ocean management, as important cross-cutting issues to address ocean affairs, such as marine science and the transfer of technology, sustainable fisheries, the degradation of the marine environment and the safety of navigation.

694. At the 86th plenary meeting of the fifty-sixth session of the General Assembly, on 14 December

2001, after extensive consultations with delegations, the President of the General Assembly, Han Seung-Soo (Republic of Korea), made an announcement reappointing as Co-Chairpersons of the third Meeting of the Consultative Process, Tuiloma Neroni Slade, Permanent Representative of Samoa to the United Nations, and Alan Simcock of the United Kingdom. Both were highly praised for their excellence as mediators and as consensus builders.

695. The third Meeting of the Consultative Process is the last meeting of the Consultative Process in keeping with General Assembly resolution 54/33. In that resolution, the General Assembly had further decided "to review the effectiveness and utility of the consultative process at its fifty-seventh session" (para. 4). Therefore, the General Assembly, at its fifty-seventh session, will evaluate the Consultative Process and take a decision on how, in the long term, to ensure more comprehensive, integrated and coordinated policies in matters relating to the oceans and the law of the sea.

Notes

[1] Elisabeth Mann Borgese, *The Oceanic Circle: Governing the Seas as a Global Resource* (Tokyo, United Nations University Press, 1998), p. 50. Professor Mann Borgese, a leading member of the international ocean community, passed away in February 2002 (see United Nations press release SEA/1730).

[2] Robert Gagosian, "What the seas can offer", *The New York Times*, 4 August 2001.

[3] Algeria, Angola, Antigua and Barbuda, Argentina, Australia, Austria, Bahamas, Bahrain, Bangladesh, Barbados, Belgium, Belize, Benin, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei Darussalam, Bulgaria, Cameroon, Cape Verde, Chile, China, Comoros, Cook Islands, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic Republic of the Congo, Djibouti, Dominica, Egypt, Equatorial Guinea, *European Community*, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iraq, Ireland, Italy, Jamaica, Japan, Jordan, Kenya, Kuwait, Lao People's Democratic Republic, Lebanon, Luxembourg, Madagascar, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Monaco, Mongolia, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, the former Yugoslav Republic of Macedonia, Togo, Tonga, Trinidad and Tobago, Tunisia, Uganda, Ukraine, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uruguay, Vanuatu, Viet Nam, Yemen, Yugoslavia, Zambia and Zimbabwe.

[4] Detailed reports on the issues dealt with in previous Meetings of States Parties are contained in documents SPLOS/3, SPLOS/4, SPLOS/5, SPLOS/8, SPLOS/14, SPLOS/20, SPLOS/24, SPLOS/31, SPLOS/48, SPLOS/60 and SPLOS/73, as well as the reports of the Secretary-General to the General Assembly on the law of the sea (A/50/713, paras. 14-21 and 48-58; A/51/645, paras. 24-25 and 54-84; A/52/487, paras. 25-55; A/53/456, paras. 29-78; A/54/429, paras. 29-67; A/55/61, paras. 18-30; A/56/78, paras. 25-38 and 52/82).

[5] More detailed information regarding the work of the Commission can be found in the recent annual reports of the Secretary-General (A/56/58, paras. 52-82, and Add.1, paras. 19, 30-49; A/55/61, paras. 25-29; A/54/429, paras. 55-69; A/53/456, paras. 55-69; A/52/487, paras. 43-53; and A/51/645, paras. 77-84).

[6] See opening address by the Secretary-General of IMO to the 22nd regular session of the IMO Assembly, available on the web site of IMO, at www.imo.org/HOME.html.

[7] The report of the Correspondence Group is contained in document MEPC/47/3/3.

[8] The Code is annexed to document MEPC 47/3/2.

[9] For information on progress made by the Technical Working Group of the Basel Convention, see www.basel.int.

[10] FAO report on the State of World Fisheries and "Aquaculture 2000".

[11] For further information, see Circular STCW.7/Cir.12, available on the web site of IMO, at www.imo.org/HOME.html.

[12] The report of the Commission is available on its web site, at www.icons.org.au.

[13] The reports prepared by ILO for the Working Group and the report of the meeting are available on the web site of ILO at www.ilo.org/public/english/standard/relm/gb/docs/gb283/pdf/lils-7.pdf.

[14] See terms of reference of the Working Group in the report of their third session, document IMO/ILO/WGLCCS 3/9, annex 4.

[15] International Maritime Dangerous Goods (IMDG) Code, International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), International Code for the Construction and Equipment of Ships Carrying Liquified Gases in Bulk (IGC Code), Code for Safe Practice for Solid Bulk Cargoes (BC Code), and Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Waste in Flasks on Board Ships (INF Code). SOLAS Chapter VII provides for the mandatory application of the IBC and IGC Codes, and most recently also the INF Code. The IBC and BCH Codes are mandatory under MARPOL 73/78.

[16] IAEA Safety Standards Series No. TS-R-1 CST-1, Revised.

[17] The text of recent declarations by some States and regional groups regarding safety in the maritime transport of radioactive material were presented to the IAEA General Conference at its forty-fifth session (September 2001) by the Chairman of the Latin American and Caribbean Group, in document GC(45)/INF/18.

[18] See IMO document MEPC 46/INF.35.

[19] The amendments entered into force on 1 January 2000.

[20] For further information, see www.cospas-sarsat.org.

[21] See report of the forty-seventh session of the Subcommittee on Safety of Navigation, document NAV 47/13, paras. 12.28-12.33, and annexes 18 and 19.

[22] See report of the eighty-third session of the IMO Legal Committee, LEG 83/14, paras. 170-174.

[23] The 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances includes an article on illicit traffic by sea, which builds upon the general requirement in article 108 of UNCLOS to cooperate in the suppression of illicit traffic in narcotic drugs and psychotropic substances engaged in by ships on the high seas. The 1988 IMO Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (1988 SUA Convention), its 1988 Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf (1988 SUA Protocol) and the 2000 Protocol against the Smuggling of Migrants by Land, Sea and Air, supplementing the United Nations Convention against Transnational Organized Crime, provide a legal regime for dealing with criminal activities taking place on the high seas or in the exclusive economic zone, which are not specifically addressed in UNCLOS.

[24] See cooperative measures recommended by the Council for Security Cooperation in the Asia Pacific in its Memorandum No. 5.

[25] See also IMO Assembly resolution A.584(14), entitled "Measures to prevent unlawful acts which threaten the safety of ships and the security of their passengers and crews"; MSC/Circ.443 on "Measures to prevent unlawful acts against passengers and crews"; and MSC/Circ.754, "Passenger ferry security".

[26] Proposed by the United States. See IMO document FAL 29/2/1, para. 5.

[27] Proposed by the International Confederation of Free Trade Unions in a submission to the seventy-fifth session of the Maritime Safety Committee, to be held in May 2002.

[28] Report of the seventy-fourth session of the Maritime Safety Committee, document MSC 74/24, para. 17.2.

[29] See excerpts from the report on the web site of ICC at www.iccwbo.org.

[30] Report of the IMB Fourth International Meeting on Piracy and Phantom Ships, 26 and 27 June 2001, Kuala Lumpur.

[31] There may be a basic war premium of 0.1 per cent, which can be raised on a seven-day basis, but it appears that incidents of piracy have little effect.

[32] Measures proposed by the Baltic and International Maritime Council in a letter to the Secretary-General of the United Nations and the Secretary-General of IMO.

[33] The report of the second meeting is contained in A/56/121.

[34] The report of the assessment missions is contained in document MSC 74/17/1.

[35] The report of the assessment mission in Ecuador is contained in document MSC 75/18/1.

[36] For the most recent status of the Protocol, see the web site of the Centre for International Crime Prevention of the United Nations Office for Drug Control and Criminal Justice, at www.odccp. org/crime_cicp.html.

[37] See *Official Records of the Economic and Social Council, 2001, Supplement No. 8* (E/2001/28), available on the web site of UNDCP at www.undcp.org/cnd_documents.html.

[38] See A/55/386, para. 118, Mauritius Fisheries and Marine Resources Act of 1998, for example.

[39] See A/53/473, para. 122; A/55/386, paras. 112, 114, 126, 129, 138; and A/56/357, para. 37.

[40] See A/55/386, para. 126.

[41] See A/53/473, paras. 124-127; A/55/386, paras. 111, 115, 120, 131, 135; and A/56/357, paras. 12, 15, 18, 32.

[43] A/53/473, paras. 76, 117, 120, 126; A/54/461, paras. 19, 27; A/55/386, paras. 77, 112, 115, 127; A/56/357, paras. 11, 37.

[44] A/53/473, paras. 117, 126; A/55/386, para. 133.

[45] A/53/473, paras. 121, 126; A/54/461, para. 28; A/55/386, paras. 115, 130.

[46] A/55/386, para. 131; A/56/357, para. 12.

[47] A/53/473, paras. 116, 118, 120; A/54/461, paras. 19, 27; A/55/386, paras. 73, 110, 133, 135; A/56/357, paras. 10, 11, 43.

[48] A/53/473, paras. 120, 126, 129; A/54/461, paras. 13, 28; A/55/386, paras. 115, 127, 130; A/56/357, paras. 9, 12, 37.

[49] A/55/386, paras. 114, 116.

[50] A/52/555, paras. 6, 16, 25, 28, 33; A/54/461, paras. 7, 11, 21; A/55/386, paras. 121, 129; A/56/357, paras. 14, 23.

[51] A/52/555, para. 5; A/56/357, para. 16.

[52] FAO Fishery and Agricultural Legislation: United Kingdom, Fishery Limits Act 1976, sect. 3 (6), vol. 26, No. 2, 1997, p. 89; Sri Lanka, Fisheries Act No. 59 of 1979, Regulation of Foreign Fishing Boats, vol. 29, No. 1, 1980, p. 89; Trinidad and Tobago, Archipelagic Waters and Exclusive Economic Zone Act 1986, sect. 32, vol. 36, No. 2, 1987, p. 107.

[53] FAO contribution to the report of the Secretary-General on oceans and the law of the sea (December 2000).

[54] Law No. 18.892 of 1989 and Amendments, General Law on Fisheries and Aquaculture, art. 165, Library of the National Congress of Chile, Juridical-Legislative System, Most consulted law, web site at: www.congreso.cl/biblioteca/leyes/otras/pesca13.htm.

[55] Information provided by the South Pacific Applied Geoscience Commission (SOPAC).

[56] Coastal State Requirements for Foreign Fishing Database, FAO Legal Office: http://www.faolex.fao.org/cgibin/fishery.

[57] Information provided by SOPAC.

[58] Adoption of the 1995 Fish Stocks Agreement and the Code of Conduct for Responsible Fisheries.

[59] Progress Report on the Implementation of Conference Resolution 13/97 (Review of FAO Statutory Bodies) and the Strengthening of FAO Regional Fisheries Bodies, Committee on Fisheries, Twenty-third Session, Rome, 15-19 February 1999, document COFI/99/4, para. 4.

[60] Report of GFCM, Twenty-fourth Session, Alicante, Spain, 12-15 July 1999 (GFCM Report 24), paras. 27-28.

[61] COFI/99/4, para. 5.

[62] Report of the Third Session of IOTC, Male, Seychelles, 9-12 December 1998, document IOTC/03/98/R [E], appendix II.

[63] A/54/461, paras. 33 and 44; Summary Report of the Eighteenth Annual Meeting of NEAFC, 23-25 November 1999, para. 7.

[64] Report of the Fifteenth Meeting of CCAMLR, Hobart, Australia, 21 October-1 November 1996, document CCAMLR-XV, pp. 7-20.

[65] Ibid., Conservation measures adopted in 1996: Conservation measure 103/XV, p. 54.

[66] A/54/429, para. 298.

[67] A/55/386, paras. 144, 147 and 151.

[68] Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific, article 5 (a), (d) and (f); article 6; articles 12 and 13.

[69] Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean, article 2; article 3 (e) and (g); articles 7, 10 and 19, http://www.fao.org/Legal/default.htm.

[70] Framework Agreement for the Conservation of the Fisheries Resources on the High Seas of the South-East Pacific ("Galapagos Agreement"), article 5 (a), (b), (c) and (e), article 7 (e), (f) and (g).

[71] Draft Agreement for the Establishment of a South-West Indian Ocean Fisheries Commission, Second Intergovernmental Consultation on the Establishment of the South West Indian Ocean Fisheries Commission, Antananarivo, 25-28 September 2001.

[72] Report of the Meeting of FAO and non-FAO Regional Fishery Bodies or Arrangements, Rome, 11-12 February 1999, FAO Fisheries Report No. 597 (FIPL/R597).

[73] Information provided by FAO.

[74] Report of the Meeting of FAO and non-FAO Regional Fishery Bodies or Arrangements, Rome, 11-12 February 1999, document X1212/E, para. 27.

[75] Agenda 21, chap. 17, paras. 17.49, 17.70.

[76] Information provided by FAO.

[77] Ibid.

[78] FAO Committee on Fisheries, Twenty-fourth Session, Rome, 26 February-2 March 2001, Progress in the Implementation of the Code of Conduct for Responsible Fisheries and Related International Plans of Action (COFI/2001/3), paras. 13-18.

[79] Information provided by FAO.

[79] FAO Committee on Fisheries (COFI/2001/3), para. 46.

[80] Ibid., para. 34.

[81] Ibid., para. 37.

[82] Committee on Fisheries, Twenty-third Session, Rome, 15-19 February 1999, Progress Report on the Implementation of the Code of Conduct for Responsible Fisheries (COFI/99/3), para. 5.

[83] COFI/2001/3, paras. 37-38.

[84] http://www.fao.org/fi/projects/iflp/index.html.

[85] Committee on Fisheries, Twenty-third Session, (COFI/99/3), para. 4.

[86] Information provided by FAO to the Secretary-General, January 2002.

[87] See COFI/2001/3, para. 8.

[88] Information provided by FAO.

[89] See COFI/2001/3, paras. 1-8.

[90] Information provided by FAO to the Secretary-General, January 2002.

[91] COFI/2001/3, para. 47.

[92] Ibid., para. 44.

[93] COP-4 decision IV/5, "Conservation and sustainable use of marine and coastal biological diversity", including a programme of work, UNEP/CBD/COP/4/27, pp. 84-96.

[94] UNEP/CBD/COP/5/10.

[95] UNEP/CBD/COP/5/23, annex, p. 74.

[96] Information provided by the secretariat of the Convention on Biological Diversity to the Secretary-General dated 21 January 2002.

[97] http://www.environnement.gouv.fr/icri/index.html.

[98] Figures for 1982 are from the *International Petroleum Encyclopedia*. Figures for 1995 are from the American Petroleum Institute as well as communications with an expert, Tom Kellock of ODS-Petrodata Group.

[99] Michael J. Cruickshank, "Globally significant events in the ocean mining industry during 2001", *Sea technology*, January 2002, vol. 43, No. 1, p. 40.

[100] Ibid., p. 40.

[101] See www.isa.org/worldatom.

[102] Michael J. Cruickshank, op. cit.

[103] Agenda 21, chap. 17.G, para. 17.128.

[104] UNCLOS arts. 6, 7(1), 13, 47(1), 47(4), 121(2) re archipelagic States; arts. 46, 47(1), 53(5) re regime of islands; arts. 121 re Island States, AGXI/A/S3 (15)(d): United Nations Framework Convention on Climate Change, Agenda 21, chap. 17.G; 1994 Declaration of Barbados and Programme for the Sustainable Development of Small Island Developing States, which includes chapter I, "Climate change and sea level rise" and chapter IV, "Marine and coastal development", respectively. Barbados 1994.

[105] As at 31 January 2001.

[106] As at 31 January 2001.

[107] UNCLOS, art. 47.

[108] Kotobalavu, J., "Extended maritime jurisdiction in the Pacific: maximizing benefits from marine resources", In *The International Implications of Extended Maritime Jurisdiction in the Pacific*, Honolulu, Law of the Sea Institute, 1988, p. 117.

[109] *Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, 25 April-6 May 1994* (United Nations publication, Sales No. E.94.I.18 and corrigenda).

[110] Part IV.C, para. (i), (iii), (v) and (vi) of the Barbados Programme of Action share elements that reflect aspects of article 197 of Part XII of UNCLOS, which deals with "Cooperation on a global or regional basis".

[111] UNCLOS arts. 61, 62, 63, 64 and 1995 Fish Stocks Agreement.

[112] *Official Records of the General Assembly, Twenty-second Special Session, Supplement No. 2* (A/S-22(2), p. 8).

[113] Ibid., paras. 14 and 15 (a), (d) and (f).

[114] In January 1991, CFRAMP was officially launched with support from the Government of Canada to promote the sustainable use and conservation of the fisheries resources of CARICOM States. The development and establishment of CRFM will provide support to CARICOM States after the conclusion of the CFRAMP.

[115] 14 States of the Pacific Islands Forum are small island developing States.

[116] *Official Records of the General Assembly, Twenty-second Special Session, Supplement No. 2* (A/S-22/2), p. 9, para. 15 (i).

[117] Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

[118] United Nations Framework Convention on Climate Change, article 3, "Principles", para. 1.2.

[119] Marrakesh Ministerial Declaration, decision 1/CP.7, document FCCC/CP/2001/13/Add.1, chap. I.

[120] General Assembly resolution 56/12, twelfth preambular paragraph.

[121] See UNESCO web site press release: www.unesco.org.

[122] A. E. Boyle, "Marine pollution under the Law of the Sea Convention", *American Journal of International Law*, vol. 79, No. 2 (1985): 347-372.

[123] Ibid.

[124] The information on pollution from vessels was mostly taken from www.imo.org.

[125] "Guidelines for Marine Environmental Assessments", GESAMP Reports and Studies No. 54, 1994.

[126] "An approach to environmental impact assessment from projects affecting the coastal and marine environment", UNEP Regional Seas Reports and Studies No. 122, 1990.

[127] The full text of the paper can be found at www.unep.org/marineassessment/.

[128] The report of the meeting can be found at www.unep.org/marineassessment/reports/iceland_report/FinalReportNovember2001a.doc.

[129] The report on the Millennium Ecosystem Assessment can be found at: www.un.org/millennium/sg/report/full.

[130] It is important to note that the International Law Commission at its fifty-third session (2001) adopted new draft articles on responsibility of States for internationally wrongful acts. The General Assembly, in its resolution 56/83 of 12 December 2001, took note of the articles and commended them to the attention of Governments (for the text of the articles, see resolution 56/83, annex).

[131] UNCLOS, Annex VIII, article 1.

[132] UNCLOS, Annex VIII, article 2.

[133] UNCLOS, article 290, para. 1.

[134] "A Sea of Troubles", GESAMP Reports and Studies No. 70, 2001.

[135] Paris Conference, op. cit.

[136] The information presented in this section is excerpted from the contribution of the GPA Coordination Office.

[137] See "Implications of the entry into force of the United Nations Convention on the Law of the Sea on the 1972 London Convention", Comments by the Division for Ocean Affairs and the Law of the Sea, United Nations Office of Legal Affairs. IMO document LC/AM 2/3/1, dated 18 March 1994.

[138] See report of the Twenty-third Consultative Meeting of Contracting Parties to the London Convention 1972, in connection with the World Summit on Sustainable Development, document LC23/16.

[139] The wastes or other materials that may be considered for dumping under the Protocol are: dredged material; sewage sludge; fish waste, or material resulting from industrial fish processing operations; vessels and platforms or other man-made structures at sea; inert, inorganic geological material; organic material of natural origin; and bulky items, primarily composed of iron, steel, etc.

[140] The text of the draft Strategic Plan is posted on the web site of the Secretariat of the Basel Convention at www.basel.int.

[141] For a detailed presentation of the legal regime in UNCLOS regarding the prevention, reduction and control of pollution from vessels, see the report of the Secretary-General on the law of the sea: protection and preservation of the marine environment, document A/44/461.

[142] The Division for Ocean Affairs and the Law of the Sea is currently engaged in preparing a study, in the form of a matrix, on the obligations of States under UNCLOS and those originating from other conventions to which UNCLOS refers as international rules, norms, standards and regulations.

[143] The study is contained in document LEG/MISC/2.

[144] See *Official Records of the Economic and Social Council, 1999, Supplement No. 9* (E/1999/29), chap. I, sect. C.

[145] Ibid.

[146] See *Ballast Water News*, issue 3, October-December 2000.

[147] The Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has expressed the view that, while exploratory drilling, extracting oil and transporting and refining petroleum all produce waste, these activities have had relatively minor effects on coastal and seabed ecosystems. The Group considers the potential for contamination from the exploitation of oil and gas to be greater in deeper waters — since for example a blow-out in deep water would be difficult to control quickly and have serious ecological effects. ("A Sea of Troubles", GESAMP Report and Studies No. 70). IMO considers that offshore oil and gas exploration and production activities are significant sources of marine pollution and has cited as an example the North Sea, where it is estimated that between 1984 and 1990 some 14 to 27 per cent of oily pollutants originated from offshore oil and gas activities. (IMO report to the Conference on Sustainable

Development in connection with the World Summit on Sustainable Development (Background Paper No. 9)).

[148] Report of IMO to the Conference on Sustainable Development at its seventh session.

[149] UNCLOS article 194, para. 5.

[150] UNCLOS article 234.

[151] The International Whaling Commission designated the Indian Ocean (1979) and the Southern Ocean (1994) as sanctuaries where commercial whaling is prohibited.

[152] ICRAN is a collaboration between the UNEP World Conservation Monitoring Centre (WCMC); the regional seas programmes for the Caribbean, Eastern Africa and East Asia; the World Fish Center (ICLARM); the World Resources Institute (WRI); the International Coral Reef Initiative secretariat (ICRI); the Global Coral Reef Monitoring Network (GCRMN); the Coral Reef Alliance (CORAL) and the South Pacific Regional Environment Programme (SPREP).

[153] GESAMP, "A Sea of Troubles", GESAMP Reports and Studies No. 70, p. 13.

[154] L. A. Kimball, *International Global Governance — Using International Law and Organizations to Manage Marine Resources Sustainably*, IUCN, 2001, p. 65.

[155] GESAMP, "A Sea of Troubles", GESAMP Reports and Studies No. 70, p. 22.

[156] The information presented in this section is excerpted from the contribution of UNEP to the report. For more details about the UNEP regional seas programme, see www.unep.ch/seas/.

[157] It should be noted that not all 140 of the countries are parties to UNCLOS.

[158] Convention for the Protection of the Mediterranean Sea against Pollution; Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution; Convention for the Protection and Development of the Marine Environment of the Wider Caribbean; and Convention on the Protection of the Black Sea Against Pollution.

[159] Convention for the Protection of the Mediterranean Sea against Pollution; Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific; Convention for the Protection and Development of the Marine Environment of the Wider Caribbean; and Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region.

[160] Upper South-West Atlantic.

[161] The information presented in this section is excerpted from the contribution of UNEP to the report.

[162] The Arctic Council is a high-level intergovernmental forum that provides a mechanism to address the common concerns and challenges faced by the Governments of States bordering the Arctic and the people of the Arctic. Members of the Council are Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States of America.

[163] *Encyclopedia of the Atmospheric Environment* www.doc.mmu.ac.uk/aric/eae/Climate/Older/Oceans.html.

[164] Ibid.

[165] Ibid.

[166] United Nations Framework Convention on Climate Change, article 3.1.

[167] Ibid.

[168] Marrakesh Ministerial Declaration, document FCCC/CP/2001/13/Add.1, chap. I, decision 1/CP.7, para. 1.

[169] Recognizing the problem of potential global climate change, the WMO and UNEP established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The Panel is open to all members of UNEP and WMO. Its role is to assess the scientific, technical and socio-economic information relevant for understanding the risks of human-induced climate change. It does not carry out new research, nor does it monitor climate-related data. It bases its assessment mainly on published and peer-reviewed scientific technical literature.

[170] See www.unfccc.int/.

[171] General Assembly resolution S/19-2, annex.

[172] E/CN.17/2002/PC.2/Misc.1.

[173] A/CONF.199/PC/L.1, annex.

[174] Agenda 21, chap. 34, para. 34.7.

[175] See " Towards the 2002 World Summit on Sustainable Development: Ensuring the Sustainable Development of Oceans and Coasts — A Call to Action", Co-Chairs' reports from the Global Conference on Oceans and Coasts at Rio+10, held at UNESCO headquarters, Paris, 3-7 December 2001.

[176] A/56/58, paras. 452-547, and IOC document IOC/INF-961.

[177] See IOC Annual Report 2000, at ioc.unesco.org/iocweb/.

[178] Revised statutes of IOC adopted by the General Conference of UNESCO at its thirtieth session, document IOC/INF-785 Corr.

[179] For further details, see paras. 521-551 below as well as A/55/274 and A/56/121.

[180] A/56/58/Add.1, para. 104.

[181] Ibid., para 113.

[182] Document IOC/INF-1054.

[183] Ibid.

[184] Ibid.

[185] The information presented in this section is excerpted from the contribution of IOC to the present report.

[186] The information presented in this section is excerpted from the contribution of IOC to the present report.

[187] See the contribution by the WMO (paras. 543-547).

[188] See A/56/58, para. 513.

[189] Ibid.

[190] See also A/56/58, para. 514.

[191] A/56/58, para. 515.

[192] Ibid., para. 518.

[193] See also A/56/58, para. 529.

[194] See para. 530 above.

[195] General Assembly resolution S-19/2, annex, para. 17.

[196] See UNIDO web site: www.unido.org.

[197] See TD/B/COM.2/33-TD/B/COM.2/EM.9/3.

[198] Ibid.

[199] Ibid.

[200] The information presented in the following section has been excerpted from documents of the Tribunal.

[201] Excerpted from the contribution of ICJ to the present report. See also the annual report of the Court to the General Assembly, *Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 4* (A/56/4), and the ICJ web site: www.icj-cij.org.

[202] General Assembly resolution 55/203, paras. 1, 3 and 8.

[203] Co-Chairs' Summary, p. 8. The Co-Chairs' Summary, entitled "Ensuring the Sustainable Development of Oceans and Coasts: A Call to Action", may be accessed at www.udel.edu/cms/csmp/rio+10/pdf/cochairsreport.pdf.

[204] SIDA — Swedish International Development Agency; CIDA — Canadian International Development Agency; JICA — Japanese International Cooperation Agency; DANIDA — Danish International Development Agency; USAID — United States Agency for International Development.

[205] Elisabeth Mann Borgese, "UNIPOLOS: The second session", *Environmental Policy and Law*, August 2001. vol. 31, Nos. 4-5, p. 212.

[206] "Ocean Management: A Regional Perspective", report by a Commonwealth Group of Experts, London (Commonwealth Secretariat, 1984), p. 57.

[207] The Subcommittee, now defunct, was a subsidiary body reporting to the Inter-Agency Committee on Sustainable Development under the Administrative Committee on Coordination (ACC). At its resumed 2001 substantive session in October 2001, the Economic and Social Council agreed to change the name of ACC to "United Nations System Chief Executives Board for Coordination" (CEB), without a change in its mandate. The Council also requested CEB to submit a comprehensive report on the reform of its machinery to the Council at its next session, bearing in mind the relevant reports of the Committee for Programme and Coordination". (decision 2001/321).

[208] See ACC/2000/20, Summary, p. 2; and para. 32.

[209] HLCP-ACC/2001/11.

[210] See ACC/201/5, Summary, pp. 4-5; emphasis added.

[211] See note 207.

Annex I

First Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

The Coordination Office for the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) organized the First Intergovernmental Review Meeting on the Implementation of the GPA. The meeting was held in Montreal, Canada, 26-30 November 2001. Ministers and other high level delegates from 98 countries, and participants from international financial institutions, international organizations, United Nations agencies, and non-governmental organizations reviewed the implementation of the GPA and agreed on the way forward. A major outcome of the meeting was the Montreal Declaration, adopted by Ministerial/High level segment of the meeting (see Section B below). The Montreal declaration will be forwarded to the World Summit on Sustainable Development in Johannesburg, South Africa, 2002. The meeting reviewed the successes and challenges faced in implementing the GPA and observed that considerable progress had been made. The meeting put forward the GPA as an effective means of improving regional coastal and ocean governance under ocean-related conventions, including strengthening the regional seas conventions and protocols. The GPA was viewed as a rallying point for harmonizing the activities of coastal and marine institutions and mechanisms at the local, national, regional and global levels, and for achieving efficiency by bringing stakeholders together from different sectors, both public and private, to address common objectives. (Further details on the Intergovernmental Review Meeting may be obtained by consulting the GPA Web site at www.gpa.unep.org/igr.)

In preparation for the Intergovernmental Review Meeting, the GPA Coordination Office organized, in cooperation with the World Bank, an Expert Workshop on Innovative Financing Arrangements in The Hague, 9-11 July 2001. The Office also convened a focused group in The Hague, 8 November 2001, consisting of 10 financial specialists to discuss realistic expectations for GPA financing sources, how to identify them, and how to develop them. The GPA Coordination Office, in cooperation with the International Institute for Infrastructural, Hydraulic and Environmental Engineering and the UNEP Division of Technology, Industry, and Economics, hosted a 2-day workshop in Delft, The Netherlands, 11–12 October 2001, on voluntary initiatives for water protection as a tool for implementation of the GPA.

A. Conclusions of the Co-Chairs from the First Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

Montreal, 26-30 November 2001

Introduction. In pursuance of decision 21/10 of February 2001 of the Governing Council of the United Nations Environment Programme (UNEP), government representatives, international financial institutions, international organizations, the private sector, non-governmental organizations, other stakeholders and major groups, have met from 26 to 30 November 2001, in Montreal, Canada, for the first Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

We are honoured to co-chair this important event and have prepared these conclusions as part of the proceedings of the meeting. We are pleased to recommend the following conclusions as an accompaniment to the Montreal Declaration and commend them for the consideration of Governments in preparation for the World Summit on Sustainable Development to be held in Johannesburg, South Africa, in September 2002 and all other forums at which activities relating to the goals of the Global Programme of Action are dealt with.

The 2001 report prepared by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection — Protecting the oceans from land-based activities: Land-based sources and activities affecting the quality and uses of the marine,

coastal and associated freshwater environment — highlighted the alarming conclusion that "on a global scale marine environmental degradation has continued and in many places even intensified".

The productive capacity and ecological integrity of the marine environment, including estuaries and near-shore coastal waters, continue to be degraded for a variety of reasons, including pollution from sewage, non-point source runoff from agricultural and urban areas, physical alteration and destruction of habitat, nutrients, sediment mobilization and chemicals. The negative implications for coastal and marine industry, human health, poverty alleviation, food security and safety are continuing, in many cases, unabated.

The social, environmental and economic costs to society are escalating as a result of disproportionately low levels of action to mitigate the harmful effects of land-based activities on coastal and marine environments and associated freshwater systems. Some types of damage are serious and irreversible. Indeed, the massive negative implications for human health, particularly as a result of pathogen laden sewage pollution of bathing beaches and shellfish harvesting areas have been seriously underestimated and neglected by the world community. A study by the World Health Organization has shown that such pollution results in millions of cases of disease and thousands of deaths annually.

A. Accomplishments of the Global Programme of Action

Since the inception of the Global Programme of Action, its implementation has witnessed considerable progress, and there has been continuing progress in integrated coastal zone management and ocean governance.

Many countries have prepared national programmes of action or have integrated the goals of the Global Programme of Action into their national strategies, policies, programmes and legislation.

Many regions have cooperatively prepared regional programmes of action, both binding and non-binding. Many of these provide excellent examples of coordination and cooperation and demonstrate the capacity of the regional seas programmes to serve as a central platform for improving coastal and oceans governance.

A good example of a regional approach to the Global Programme of Action and its emphasis upon developing partnerships in financing implementation is the Russian National Programme of Action for the Arctic. Similarly, a good example of multilateral partnership is the Africa Process on Cooperation for the Development and Protection of the Coastal and Marine Environment, particularly in sub-Saharan Africa.

The continuing development of the Global Programme of Action Clearing-house Mechanism by UNEP, in collaboration with respective United Nations organizations, has proved to be a major achievement for the implementation of the Global Programme of Action. It will prove to be a valuable tool for use by local, national, regional and global stakeholders in implementing the Global Programme of Action.

Many Governments have made considerable contributions in support of the Global Programme of Action Coordination Office. Special recognition should be given to the Kingdom of the Netherlands, host of the Coordination Office for the very generous continued support for the Office, and the Government of Belgium for donations allowing the development of national programmes of action in several countries. Many donor countries have also contributed significant funds in support of projects related to the Global Programme of Action in developing nations and regional programmes.

With regard to multilateral financing, the Global Environment Facility (GEF) has allocated substantial resources to projects relevant to the objectives of the Global Programme of Action. The World Bank has also provided substantial support for projects that address objectives of the Global Programme of Action.

The Stockholm Convention on Persistent Organic Pollutants, adopted at the Conference of Plenipotentiaries in May 2001, is a major binding instrument which directly addresses one of the pollutant source categories identified in the Global Programme of Action.

B. Opportunities and barriers

The first Intergovernmental Review Meeting provided Governments and other stakeholders an opportunity to consider the barriers and opportunities associated with the implementation of the Global Programme of Action. The Global Programme of Action is a suitable means of improving governance

under ocean-related conventions, including strengthening the regional seas conventions and protocols. It can serve as an effective global harmonizing mechanism to improve coordination and cooperation among these regional conventions and relevant global conventions.

The need for international cooperation and for a coordinated approach at the national level to address the problems of freshwater as well as coastal and marine pollution from land-based activities is stressed. Bringing together the many different economic sectors contributes invaluably to poverty alleviation, food security and peace.

Globally, the impact of sewage, physical alteration of coastal and marine ecosystems and high nutrient levels merit the highest priority for action. Addressing these priorities cannot be achieved in isolation of the broader objectives of sustainable development. The causative relationship between poverty, human health, unsustainable consumption and production patterns, poorly managed social and economic development, and environmental degradation must be emphasized when implementing the Global Programme of Action.

There is an urgent need to integrate coastal resource management and the requirements of coastal zone protection with river basin management. In this regard, the potential of institutional partnerships to ensure an integrated and holistic approach to coastal zone management, catchment or watershed management, and land-use planning is recognized.

C. *The Strategic Action Plan on Municipal Wastewater*

The Strategic Action Plan on Municipal Wastewater expands on what is provided in the Global Programme of Action with the aim of seeking consensus, promoting alternative solutions, and facilitating partnerships and regional cooperation. The three-pronged functional approach outlined in the Strategic Action Plan is widely supported but a number of issues could be expanded upon. Examples include:

(a) Provision of guidance on implementing new financial mechanisms;

(b) Giving adequate attention to alternatives to large and costly treatment facilities;

(c) Consideration of the impact of small industry on sewage systems;

(d) Role of water conservation measures in reducing demand for water treatment;

(e) Monitoring and evaluation.

The Draft Guidelines on Municipal Wastewater, developed by the Global Program of Action Coordination Office as a critical element of the Strategic Action Plan, provide valuable guidance to manage urban wastewater worldwide, in accordance with national policies and plans.

The transfer of technology and expertise is critical to the global implementation of the Global Programme of Action, and in particular, with regard to management of municipal wastewater. A shortage of adequately trained personnel with technical skills to manage new facilities, or administrative skills to develop management schemes is holding back the implementation of the Global Programme of Action in some parts of the world.

Initiatives concerning technology transfer should be compatible with local environmental and cultural circumstances. In this context, it is noted that a high percentage of coastal communities in developing countries suffer from a lack of basic sanitation services. There is no doubt that initiatives related to the Global Programme of Action in such communities can contribute towards efforts to address this situation.

Capacity-building initiatives related to the Global Programme of Action require consistent attention at the local and national levels, and deserve attention within the framework of national development plans.

The "polluter pays" principle provides a significant catalyst for changing attitudes and facilitating the wise use of water. It is being used successfully in a number of countries and has the combined effect of raising revenue and discouraging pollution. In implementing this principle, however, there is a need to appropriately consider the social costs and its impact on the poorest members of society. There may also be considerable costs associated with identifying the polluters and establishing a payment scheme. The "polluter pays" principle may also discourage some development and should therefore be balanced with positive economic incentives for reducing pollution.

Finally, it would be valuable to further develop the Strategic Action Plan on Municipal Wastewater in cooperation with international financial institutions.

D. *The work programme of the Global Programme of Action Coordination Office for the period 2002-2006*

The focus of the programme of work is to move the implementation of the Global Programme of Action from the planning to the action phase by developing toolkits, facilitating partnerships, and initiating demonstration and capacity-building projects. In this regard, it aims to:

(a) Facilitate the mobilization of financial resources;

(b) Further involve the private sector and civil society;

(c) Establish stronger working links with the freshwater community;

(d) Expand capacity-building by enhancing the Global Programme of Action Clearing-house Mechanism;

(e) Strengthen cooperation with United Nations agencies.

The programme of work could be further enhanced through the development of performance indicators, specific targets, and the incorporation of monitoring and assessment. These activities should build upon existing and ongoing programmes and efforts should be made to link the programme of work with those of other United Nations agencies, especially at the regional level, while avoiding duplication and overlapping. The cost-effectiveness of initiatives within the programme of work should also be analysed.

Opportunities also exist for achieving efficiencies by combining the efforts of United Nations agencies in cross-cutting issues, such as clearing-house mechanisms, capacity-building, technology transfer, indicators, and monitoring. Specifically, in relation to the clearing-house mechanism, stronger links could be made with the non-governmental organizations community and academia. Furthermore, the meeting was reminded that in many developing countries, access to the Internet is severely limited, especially for local practitioners.

Expanding the links with the freshwater community to also incorporate land-use planning would also significantly enhance the programme of work. In all aspects of the programme of work, however, the central role of Governments in setting priorities and ensuring compliance must be emphasized.

Many United Nations agencies and other international organizations have initiated activities that complement the proposed programme of work. Significant examples include the regional virtual centres for technology transfer being developed by the International Ocean Institute, and the Coastal Cities Network being developed by the International Council of Local Environmental Initiatives.

E. *Oceans and coastal governance*

Recognizing the central authority of the United Nations Convention on the Law of the Sea, and the guidance of Agenda 21, the implementation of the Global Programme of Action can be both a catalyst for, and a beneficiary of, improved coastal and oceans governance. It provides an excellent framework for harmonizing the activities of coastal and marine institutions and mechanisms at the local, national, regional and global levels, and for producing efficiencies by bringing stakeholders together from different sectors, both public and private, to address common objectives. For example, at the international level, the Global Programme of Action could serve as a harmonizing mechanism for the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Stockholm Convention on Persistent Organic Pollutants and the Convention on Biological Diversity. Its active implementation at the local, national and regional levels will contribute to the protection of human health, food security, economic development and environmental protection.

Improvements in coastal and oceans governance should be at a level commensurate with the problem of coastal and marine degradation. However, the harmonizing capacity of the Global Programme of Action is especially relevant at the regional level and the regional seas programmes provide an excellent and existing vehicle for implementing the Global Programme of Action. They are a fundamental pillar for improved coastal and oceans governance.

The utilization of twinning arrangements involving information sharing, capacity-building and technology transfer between selected or contiguous regional seas programmes, can also strengthen coastal and oceans governance.

The objectives of the Global Programme of Action are complementary to many other multilateral environmental agreements, such as the Convention on Biological Diversity, and institutional mechanisms such as the respective regional fisheries management organizations. Consequently, efforts should be made to integrate the Global Programme of Action into these initiatives in a more systemic manner. In this context, coordinating capacity-building amongst multilateral environmental agreements will improve efficiency and expand their reach and positive impacts. To facilitate this process, the Global Programme of Action Coordination Office should take active steps in collaboration with the regional seas programmes to reach out to other United Nations agencies. Consideration should be given to organizing a meeting of all regional seas programmes to coordinate a strategic approach to this effect, and to consider the possible role of the regional seas programmes as a platform for multi-stakeholder participation.

At the global level the Coordination Office should explore the potential for memoranda of understanding with multilateral environmental agreements, such as the Convention on Wetlands of International Importance especially as Waterfowl Habitat, to coordinate their initiatives. Similarly, there is a need to ensure the currency of the Global Programme of Action in the United Nations Oceans Consultative Process.

The importance of regional and global efforts to implement the Global Programme of Action should not undermine the importance of national action. Indeed, a bottom-up approach to improving global oceans governance is also needed. In this regard, in many countries there is a need for capacity-building and institutional strengthening to improve the governance of coastal and ocean resources at the national level. Similarly, there is a need to better understand the oceans while supporting the economic development of the oceans.

F. Financing the Global Programme of Action

Financing appropriate action to implement the Global Programme of Action should, in the first place, come from a country's own resources. It is therefore important to engineer a country-driven demand for implementing the Global Programme of Action amongst decision makers, industry, academia and the community.

The lack of adequate resources is an major impediment to the implementation of the Global Programme of Action. Innovative approaches must be adopted to attract new finances for implementation of the Global Programme of Action. Such approaches should be tailored to national and local needs, including the needs of municipalities and local government entities, and solutions must encapsulate appropriate lower cost alternatives. Lower cost solutions should, however, be assessed for their total economic, social and environmental costs and impacts which may not be immediately apparent in some cases.

It is essential to integrate Global Programme of Action related activities into national development strategies and development assistance frameworks in order to facilitate interventions by international financial institutions, regional development banks and the donor community.

In implementing the Global Programme of Action increased emphasis should be given to the issues of poverty alleviation, human health and food security. Emphasizing the effect of projects related to the Global Programme of Action on these issues will attract political will, media attention, and the interest of international financial institutions. In this context, the goals of the Global Programme of Action should be incorporated into national development programmes and sustainable development strategies. Similarly, efforts should be directed towards building the capacity of Governments to assess the economic value of coastal and marine resources, and to fully engage the private sector and community groups in the implementation of the Global Programme of Action.

The development of financial partnerships, including public-private partnerships, will benefit the Global Programme of Action by increasing the level of participation in, and awareness of, the Global Programme of Action and by opening new financial opportunities. For example, Governments could take action to facilitate wider application of microfinancing

and enterprise financing mechanisms, involving the private sector and financial institutions. Similarly, stakeholders of the Global Programme of Action could contribute to national, regional or global studies related to the development of economic instruments, such as water markets and pollution reduction trading mechanisms, and to studies on the need and feasibility of multi-stakeholder water funds.

Learning partnerships with organizations such as the World Bank Institute should also be developed by the Global Programme of Action Coordination Office as an avenue to build national and regional capacity.

Finances for the Global Programme of Action can also be obtained indirectly. For example, by requiring the best available techniques in both existing industries and new investment in potentially polluting industries, Governments can stem the increasing demand for spending related to the Global Programme of Action. Similarly, the introduction of the "polluter pays" principle will provide both economic disincentives for pollution, and economic incentives for cleaner production. Appropriate debt relief is yet another option for freeing much needed financial resources so that they can be directed towards the Global Programme of Action.

Finally, it is imperative that the Global Environment Facility continue to address the priorities and objectives of the Global Programme of Action, especially in relation to the current replenishment process and within established rules and modalities.

Mr. Tuiloma Neroni Slade
Ambassador/Permanent Representative
Permanent Mission of Samoa to the United Nations

Mr. Magnús Jóhannesson
Secretary-General
Ministry for the Environment
Iceland

B. Montreal Declaration on the Protection of the Marine Environment from Land-Based Activities

We, the representatives of 98 Governments, with the valued support and concurrence of delegates from international financial institutions, international and regional organizations, the private sector, non-governmental organizations, other stakeholders and major groups, meeting in Montreal, Canada, from 26 to 30 November 2001, for the first Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, agree as follows:

We are concerned that:

(a) The marine environment is being increasingly degraded by pollution from sewage, persistent organic pollutants, radioactive substances, heavy metals, oils, litter, the physical alteration and destruction of habitats, and the alteration of timing, volume and quality of freshwater inflows with resulting changes to nutrient and sediment budgets and salinity regimes;

(b) The significant negative implications for human health, poverty alleviation, food security and safety and for affected industries are of major global importance;

(c) The social, environmental and economic costs are escalating as a result of the harmful effects of land-based activities on human health and coastal and marine ecosystems and that certain types of damage are serious and may be irreversible;

(d) The impacts of climate change on marine environments are a threat to low-lying coastal areas and small island States due to the increased degradation of the protective coastal and marine ecosystems;

(e) Greater urgency is not accorded to taking action at the national and regional levels for meeting the objectives of the Global Programme of Action.

We are concerned also about the widespread poverty, particularly in coastal communities of developing countries, and the contribution that the conditions of poverty make to marine pollution through, for example, lack of even basic sanitation; and how marine degradation generates poverty by depleting the very basics for social and economic development.

We acknowledge that the United Nations Convention on the Law of the Sea and Agenda 21 provide the key framework for implementing the Global Programme of Action.

We declare that implementation of the Global Programme of Action is primarily the task of national Governments. Regional seas programmes also play an important role in implementation and both should include the active involvement of all stakeholders.

We shall cooperate to improve coastal and ocean governance for the purpose of accelerating the implementation of the Global Programme of Action, by mainstreaming, integrating coastal area and watershed management, and enhancing global, regional and national governance processes.

We shall also cooperate to identify new and additional financial resources to accelerate the implementation of the Global Programme of Action, by building capacity for effective partnerships among Governments, industry, civil society, international organizations and financial institutions, and by making better use of domestic and international resources.

Mainstreaming of the Global Programme of Action. We commit ourselves to improve and accelerate the implementation of the Global Programme of Action by:

(a) Incorporating the aims, objectives and guidance of the Global Programme of Action into new and existing activities, action programmes, strategies and plans at the local, national, regional and global levels and into sectoral policies within our respective jurisdictions;

(b) Strengthening the capacity of regional seas organizations for multi-stakeholder cooperation and action, including through participation in partnership meetings focused on concrete problem identification and solution;

(c) Supporting the ratification of existing regional seas agreements and development of additional ones, as appropriate, and promoting collaboration between existing regional seas organizations, including through twinning mechanisms;

(d) Calling on the United Nations agencies and programmes and international financial institutions to incorporate, where appropriate, the objectives of the Global Programme of Action into their respective work programmes, giving priority in the period 2002-2006 to addressing the impacts of sewage, physical alteration and destruction of habitats and nutrients on the marine environment, human health, poverty alleviation, food security and safety, water resources, biodiversity and affected industries;

(e) Calling upon regional seas programmes in light of assessments of their marine environment to:

(i) Identify priorities with particular regard to those set out in paragraph 8 (d) above;

(ii) Prepare action plans to address the implementation of those priorities and work, as appropriate, with national authorities to implement those plans;

(iii) Produce interim reports on the carrying out of these action plans with a view to completing full reports at the time of the next Global Programme of Action review.

Ocean and coastal governance. We further commit ourselves to improve and accelerate the implementation of the Global Programme of Action by:

(a) Taking appropriate action at the national and regional levels to strengthen institutional cooperation between, inter alia, river-basin authorities, port authorities and coastal zone managers, and to incorporate coastal management considerations into relevant legislation and regulations pertaining to watershed management, in particular transboundary watersheds;

(b) Strengthening the capacity of local and national authorities to obtain and utilize sound scientific information to engage in integrated decision-making, with stakeholder participation, and to apply effective institutional and legal frameworks for sustainable coastal management;

(c) Strengthening regional seas programmes to play a role in, as appropriate, coordination and cooperation:

(i) In the implementation of the Global Programme of Action;

(ii) With other relevant regional organizations;

(iii) In regional development and watershed management plans;

(iv) With global organizations and programmes relating to implementation of global and regional conventions;

(d) Supporting this new integrated management model for oceans and coastal governance as an important new element of international environmental governance;

(e) Improving scientific assessment of the anthropogenic impacts on the marine environment, including, inter alia, the socio-economic impacts;

(f) Enhancing the state-of-the-oceans reporting to better measure progress towards sustainable development goals, informing decision-making (such as setting management objectives), improving public awareness and helping assess performance;

(g) Improving technology development and transfer, in accordance with the recommendations of the United Nations General Assembly.

Financing of the Global Programme of Action. We commit ourselves to improve and accelerate the implementation of the Global Programme of Action by:

(a) Strengthening the capacity of local and national authorities with relevant financial and other resources to identify and assess needs and alternative solutions to specific land-based sources of pollution; and to formulate, negotiate and implement contracts and other arrangements in partnership with the private sector;

(b) Calling on international financial institutions and regional development banks and other international financial mechanisms in particular the World Bank and the Global Environment Facility, consistent with its operational strategy and policies, to facilitate and expeditiously finance activities related to the implementation of the Global Programme of Action at regional and national levels;

(c) Giving due consideration to the positive and negative impacts of domestic legislation and policies, including, inter alia, fiscal measures, such as taxation and subsidies, on land-based activities degrading the marine and coastal environment;

(d) Taking appropriate action at the national level including, inter alia, institutional and financial reforms, greater transparency and accountability, the development of multi-year investment programmes and providing an enabling environment for investment.

Other provisions. We welcome the Strategic Action Plan on Municipal Wastewater and urge the United Nations Environment Programme to finalize this document as a tool for implementing the objectives of the Global Programme of Action.

We call upon Governments to ratify the Stockholm Convention on Persistent Organic Pollutants, the 1996 Protocol to the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter and other relevant agreements in particular regional conventions, such as the 1999 Aruba Protocol to the Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and protocols dealing with the prevention of pollution of the marine environment as a means of implementing the Global Programme of Action. We also stress the need for increased international cooperation on chemicals management.

We welcome also the work done by the Global Programme of Action Coordination Office, commend its 2002-2006 work programme to the Governing Council of the United Nations Environment Programme and encourage it to implement the programme at a strengthened level, subject to availability of resources.

We note the outcome of the first Intergovernmental Review of the Global Programme of Action as a valuable contribution to the implementation of Agenda 21. We request that the next Global Ministerial Environment Forum endorse this outcome. We commend the outcome to the attention of the Monterrey International Conference on Financing for Development, as well as of the Third World Water Forum to be held in Kyoto, Japan in 2003. We request the preparatory process of the World Summit on Sustainable Development to take full account of the outcome of this meeting and the objective of the Global Programme of Action as it considers measures on protection of the marine environment.

We request the Executive Director of the United Nations Environment Programme to convene the second Intergovernmental Review Meeting in 2006 and seek support for organizing the meeting.

Adopted by the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities at its first meeting on Friday, 30 November 2001.

Annex II

Ocean issues in the Pacific region in 2001: initiatives and priorities

(Contribution of the South Pacific Applied Geoscience Commission)

Regional priorities in the marine sector

The Pacific region is well aware of the constant challenges and opportunities, which it faces with regard to issues relating to the management of its ocean resources. As well it recognizes the need for adopting more cost effective options for the delivery of regional project activities through regional cooperation and collaboration due to limited available funding resources to the sector. In response to these issues, the Council of Regional Organizations of the Pacific (CROP) agreed in September 1997 that a Working Group for Marine Sector Coordination be set up to formulate strategies and review progress of regional initiatives in the marine sector.

The Marine Sector Working Group (MSWG) comprises regional organizations (FFA, PIF, SOPAC, SPC, SPREP, SPTO USP)[a] with similar mandates to promote and enhance marine development in Pacific island countries (PICs) through research, technical assistance, project management and capacity-building. It meets regularly to discuss how cooperation and complementarity can be achieved to maximize the region's limited funding resources and optimize programme and project outputs.

Experience in the Pacific region. Regional priorities for the marine sector are usually set by Governments of the Pacific region and are reflected in work programmes of the respective ministries at the national level and regional intergovernmental agencies at the regional level. In the regional context these priorities are consolidated within the CROP "Regional Strategy" and include ocean resources living and non-living; nearshore resources (coastal living and non-living resources); and cross-cutting themes such as environment, law of the sea, trade and globalization, capacity-building and information management issues.

Regional agencies involved in promoting and enhancing marine development in PICs must continue to be coordinated and engage in complimentary programmes to improve the cost effectiveness and impact of regional activities of the marine sector. Further, it is essential that donors be encouraged to fill any gaps in coverage of the marine sector, thus not directing resources to areas that are already adequately resourced. In this regard, donors should be encouraged to use the MSWG for screening, assessing and prioritizing regional projects in the marine sector.

Measures being undertaken to address these issues in the Pacific region. The MSWG meets twice annually and communicates on a regular basis to review its progress, streamline relevant CROP agencies work programmes, coordinate project formulation between agencies, guide the development of work programmes and project activities and consider the needs to the member countries and the policy objectives of donors.

Regional ocean policy

The South Pacific Regional Follow-up Workshop on the Implementation of the United Nations Convention on the Law of the Sea 1982, held in August 1999 in Vava'u, Tonga,[b] resulted in the identification of six priority areas with recommendations having been made for each of these. The priority areas included: national and regional ocean policy and legislation; marine scientific research and cooperation; delimitation of maritime zones including continental shelves; human resource development, special technical assistance, and support and cooperation of regional institutions; ratification of UNCLOS and linkages to relevant treaties; and surveillance and information exchange.

The 1999 Pacific Islands Forum Leaders Meeting endorsed the conclusions and recommendations of the workshop, in particular the six priority areas identified. The Leaders also urged members, who are already parties to UNCLOS, to implement the Convention and particularly focus on the outcomes and conclusions relating to the six priority areas identified above.

A key recommendation of the Workshop articulated the need for developing an integrated ocean policy both at the regional and the national levels, with the overriding objective being to ensure the sustainability of ocean resources.

Experience of the Pacific region. A Regional Ocean Policy has not been formally implemented in any part of the world and therefore to a large extent, the Pacific will be setting the international trend. In the Pacific context, the idea of a regional ocean policy is not new. The existing regional institutions supported by a large number of conventions and policies, provide the framework for such a policy.[5]

The possible advantages of a regional ocean policy include the consolidation of current achievements of regional institutions, the precise definition of roles and efficient allocation of scarce resources, assisting CROP agencies to develop compatible and transparent ocean programmes and providing international leadership.

Measures being undertaken to address these issues in the Pacific region. The MSWG has prepared a draft Pacific Islands Regional Ocean Policy in July 2001. A regional consultative forum with key stakeholders, the Pacific Island Countries and Territories, is now necessary to ensure their commitment and endorsement of the Policy.

The Regional Ocean Policy aims to enhance the benefits that have so far accrued to Pacific Island Countries and Territories from their pursuit of marine regionalism. Additional benefits from harmonizing these various agreements into a coherent framework include: making it easier to identify gaps or loopholes in existing regional policy. The Regional Ocean Policy would include mechanisms for developing and agreeing to further refinements with the involvement of stakeholders; strengthening the current functional task-oriented approach to regional marine cooperation and coordination; providing a more solid justification and strategic basis for donor and project support, both nationally and regionally, based on the Policy's coordinated long-term focus; and providing a reference point for developing national ocean policies, and regional positions on ocean-related issues in international forums.

Summary of national claims to maritime zone

According to UNCLOS, each PIC has exclusive jurisdiction over the living and non-living resources of the adjacent water column, seabed and subsoil to a minimum of 200 nautical miles from its coast, or to boundaries agreed with neighbouring countries. As most PICs have offshore boundaries with neighbours the delimitation of these boundaries is crucial for coastal States to define the area that is at their disposal for purposes of ocean development. Further, some PICs[4] have been identified as having the potential to establish continental shelf limits beyond 200 nautical miles.

Experience of the Pacific region. The Maritime Boundaries Delimitation Project[6] has made significant progress in assisting individual PICs towards determining their baselines and delimitation of their territorial sea, contiguous zone and exclusive economic zone. To date, the Project has received funding assistance from the European Union and Australia. In December 2000, it was agreed that the Project be transferred from the Secretariat of the Forum Fisheries Agency (FFA) to the South Pacific Applied Geoscience Commission (SOPAC).

There are a total of 45 shared boundaries between SOPAC/FFA member countries and neighbouring countries. To date 16 have been negotiated, with a requirement for further work on three of these before they can be ratified. Three are currently under negotiation and 26 boundaries have yet to be negotiated. Three member countries have yet to complete surveys for determination of baselines.

Article 76 of the Convention may become particularly significant to the Federated States of Micronesia, Fiji, Papua New Guinea, Solomon Islands and Tonga, should sound technical evidence enable them to lay legitimate claim to extension of their maritime limits beyond their 200 nautical mile exclusive economic zone.

Although decision SPLOS/72 of the Eleventh Meeting of States Parties to the Convention allows the commencement of the 10-year time period for submission of such claims to the Commission on the Limits of the Continental Shelf in May 1999 rather than November 1994 in the case of PICs which became parties to the Convention prior to May 1999, a sense of urgency must still prevail among States Parties to prepare and submit their claims.

The costs required for acquiring the technical evidence required to substantiate such claims and the costs required to prepare appropriate legal argument are acknowledged as being prohibitively high for developing States. Consequently reliable external support urgently needs to be secured to review existing data (desktop assessments) to determine the nature of

the continental shelf and its limits, identify data gaps, collect new data, and prepare and submit claims to the Commission.

Measures being undertaken to address these issues in the Pacific region. At the regional level SOPAC has been tasked with identifying and securing funds for the continuation of the implementation of the Maritime Boundaries Delimitation Project. It is envisaged that the Project will be used to complete surveys for the purpose of baseline determination and delimitation of maritime zones; strengthen capacity and skills in negotiation and dispute resolution; and assist in the delivery of partial elements of determining continental shelf extension, as it is generally acknowledged that the acquisition of any new technical data and information for such claims will be costly.

Matters requiring further action and suggested actions for enhancing coordination and cooperation at the intergovernmental and inter-agency levels. For developing PICs, especially those which meet the definition of being a small island developing State, preambular paragraphs 15, 16, 18 and 20 and the corresponding operating paragraphs of the General Assembly resolution A/RES/55/7 hold particular relevance and significance. PICs are mindful that they need to seek both financial and in-kind assistance to build their national capacity for delineation of their continental shelf limits and enable them to prepare and submit claims to the Commission due to the technical complexities, high costs and restricted time availability associated with claims preparation. Consequently, arrangements to access funds such as the CLCS voluntary trust funds, other bilateral, regional and international funding mechanisms, as well as in-kind technical support are being actively pursued, to assist potential PIC beneficiaries.

The Pacific region strongly encourages developed States to support and assist SIDS in their efforts to prepare and submit claims to delineate their continental shelf limits beyond 200 nautical miles, either through voluntary contributions to the trust funds or provision of in-kind technical assistance.

For the region, delimitation of maritime boundaries is being coordinated, at the regional level, by SOPAC in close collaboration with FFA.

Maritime safety in the Pacific region

Shipping is the primary means of transport in the Pacific region for both persons and cargo. Many people live on islands away from the main centres of population. So it is by ship that they send their produce to market; it is by ship that their supplies come in; and it is by ship that they travel to visit relatives, attend weddings, funerals and other important social events. Often these vessels are small cargo ships, but in many cases they are made of fibreglass, powered by small outboard engines and are often only about 19 to 25 feet long.

Any number of large ships transit the region, some stopping in ports such as Port Moresby, Honiara, and Port Vila en route to and from eastern Asia, and some putting into Suva, Apia and Nuku'alofa bound for the Panama Canal from Australia or New Zealand. There are also regional shipping companies, either bringing goods to hubs such as Suva, or returning with fresh produce for the burgeoning Pacific Island communities in Auckland, Sydney and Melbourne. Tankers bring gasoline, kerosene, aviation spirit and other fuels into the main ports of the region.

In addition to the cargo and passenger ships in the Pacific region, there are numerous fishing vessels of all sizes. They range from large American-owned purse-seiners to Korean and Taiwanese long-liners, and from local commercial fishing vessels to aluminium twin-hulled catamarans, and sail-propelled outrigger canoes fishing in the many lagoons or even venturing out into the ocean.

Experience in the Pacific region. Shipping and seafaring is of utmost importance in PICs, both as a means of transportation and a provider of employment. It is therefore necessary for PICs to have the necessary legal and administrative elements in place for the correct administration and oversight of shipping (and fishing vessels) for the safety of life and property at sea and the preservation of the marine environment.

The types of craft are numerous: from small boats, to salvage tugs, to fishing vessels to large container carriers, to small parcel tankers. The size of these vessels varies tremendously, as does the skill, experience and knowledge of their crews.

There are several international maritime conventions dealing with ship safety and safety of navigation, e.g. SOLAS, Load Lines Convention,

Tonnage Convention, COLREG, CSC, INMARSAT and INMARSAT Operating Agreement and Amendments, STCW and SAR of which SOLAS is the primary one.

Most PICs have Shipping Acts, many of which incorporate SOLAS by reference. The difficulty is that SOLAS is continually changing, and many maritime administrations do not have sufficient staff to monitor these changes or change their domestic legislation or regulations as necessary.

Furthermore, in recent years PICs have had to adopt Port State control requirements of various conventions, in addition to carrying out their Flag State responsibilities. This also places an additional burden on maritime administrations.

Measures being taken to address these issues in the Pacific region. It has been agreed in various forums that the Regional Maritime Programme (RMP) of SPC has the mandate for initiatives in the area of maritime safety. Over the years, the Shipping Acts in a large number of PICs have been reviewed and in many PICs the original Shipping Acts have been replaced with an SPC model. In other cases, the existing Shipping Acts have been amended on a chapter-by-chapter basis. The net result is that most PICs have legislation incorporating by reference the above-noted conventions. Many PICs are now in the process of developing regulations to give more detailed effect to the provisions of the conventions.

To date, the RMP has developed regulations incorporating the provisions of the Load Lines, Tonnage and COLREG Conventions, and is in the process of developing regulations for the safety of convention vessels, the safety of non-convention vessels, and the safety of fishing vessels.

While many of the larger vessels transiting the Pacific region have excellent safety records, the same cannot be said for various classes of local fishing vessels or for small outboard-powered vessels carrying passengers between islands. What is required here to improve this situation is a combination of education, training and legislation/regulations requiring that vessels be fitted with various safety equipment and appliances.

The RMP has developed training course materials for navigation of smaller vessels, survival at sea, firefighting and occupational health and personal safety. The Programme has also developed regulations for the safety of small fishing vessels and the safety of small boats.

Matters requiring further action. The RMP is preparing seminars and workshops on: the Global Maritime Distress and Safety System (GMDSS), a global radio-communications system for safety and distress related radio transmissions, together with a regional Search and Rescue capability; implementation of the International Safety Management (ISM) Code and related Safe Ship Management (SSM) and Ship's Operating Plan (SOP) systems for medium and small vessels respectively; and the carriage of dangerous goods, deck cargoes and containers on board ships operating in the Pacific region.

Maritime training in the Pacific region

Most of the 14 PICs rely on the sea as a form of sustenance (fisheries), coastal transportation and employment on local shipping or fishing vessels. Many of the seafarers from the PICs find employment on ships trading overseas. These seafarers earn relatively good wages by international standards and remit to their extended families monies that collectively contribute significantly to the national economy.[f]

Furthermore, the ability to gain employment on ships trading overseas reduces unemployment, which in turn reduces pressure on governments to provide assistance, and alleviates potential social problems. It allows families to remain in their traditional land-owning units and/or villages without having to flock to major centres for employment or support by family members who are employed there in the public or private sectors.

The 1978 International Convention on Standards of Training, Certification and Watch-keeping for Seafarers underwent a major revision in 1995 (STCW 95), with the amendments entering into force on 1 February 1997. STCW 95 stipulates certain standards that countries must ensure for ships sailing international waters under their flags (that is, these standards do not apply to domestic fleets). It also stipulates standards for seafarers on foreign-going vessels. In other words, to enable its nationals to work on such vessels, a country must ensure its training institution and maritime authorities meet these standards. Standards relate to: maritime training (such as curricula, teacher qualifications, workplace

assessments); certification (quality audit procedures, documentary evidence, approved certificate structure) and watch-keeping (on the bridge, in the engine room, in port).

The Regional Maritime Programme (RMP) of SPC has assisted the 10 PICs that operate Maritime Training Institutions to be included on the IMO "White List", which indicates full and complete compliance with the provisions of STCW 95.

Experience in the Pacific region. Regular remittances from seafarers working on overseas foreign-going vessels contribute greatly to the economies of most Pacific Island countries. For example, in Kiribati the remittances of approximately 1,700 seafarers amount to close to 12 million Australian dollars per annum, and in Tuvalu, the remittances of about 600 seafarers amount to about 3 million Australian dollars per annum. These remittances provide another source of cash income for village economies that otherwise tend to rely on the sale of fish and agricultural produce such as copra. Unlike these traditional sources that can be affected by bad weather, remittances provide a relatively steady income to meet basic needs such as food, education and clothing. Remittances have also become the major source of capital for small-scale businesses, particularly in the outer islands, and are used to build concrete houses, which require less maintenance than traditional dwellings.

The aim of the RMP to maintain the inflow of remittances by building the capacity of Pacific Island countries to maintain a supply of qualified seafarers. Among PICs, there are 10 maritime training institutions providing training at various levels, plus two institutions providing fisheries training. By 2002, ship owners and employers will require their workers to be seafarers whose qualifications are endorsed by STCW 95. Such qualifications in turn require the country's maritime authorities and colleges to meet the STCW 95 standards.

Measures undertaken to address these issues in the Pacific region. All seafarers on international ships will need to have completed upgrade training by February 2002 in compliance with the STCW 95 Convention. Not all seafarers serving on domestic trade ships will complete their training by this deadline and will have to complete STCW 95 Upgrade Courses after February 2002. To date, over 1 million U.S. dollars has been spent to upgrade the region's seafarers.

In addition to STCW 95 upgrade requirements additional STCW 95 short courses need to be developed for seafarers serving on different classes of vessels. For example, seafarers serving on tankers must undergo a tanker familiarization course and seafarers serving on passenger ships must have completed an approved crisis management and crowd control course.

Since the 1960s, the legal regime governing shipping has become increasingly global, with the IMO developing over 25 major international maritime conventions as well as numerous codes and regulations. However, there prevails a general lack of knowledge about maritime matters in the region, and often governments are not fully aware of the overall nature of the shipping industry. Knowledge, awareness and experience among those involved in and concerned with the maritime sector are key to enhancing their contribution to, and their dealings with, maritime matters.

Non-technical personnel, at operational and policy levels, need to be aware of the many aspects of the maritime sector. The dissemination of information and its exchange at this initial level needs to be aimed at: general staff of transport departments or ministries; senior civil servants of transport and planning departments and ministries; staff of port authorities and departments; ship owners and operators, both in the public and the private sectors; and users of shipping services.

The RMP has developed the following mentoring programmes in an effort to strengthen regional capacity in the maritime sector: (a) the Administrators' Mentoring Programme provides an avenue for building up knowledge and increasing the awareness and experience in maritime matters of government officials at policy and operational levels, through attachments to relevant organizations, within the region; (b) the Port State Control Inspectors' Secondment Programme offers the region's maritime inspectors a weeklong "on-the-job training" attachment with the New Zealand Maritime Safety Authority at either their Auckland or Tauranga Ports. To date 17 PIC nationals have benefited from the Programme; (c) a Heads of School Mentoring Programme, established to enable Heads of Schools the opportunity to spend a week each at the New Zealand Maritime School and the Papua New

Guinea Maritime College to discuss topical issues and challenges facing their respective schools.[a] This interchange assists in upgrading both the skills and knowledge of these key personnel in the maritime sector; (d) the Tutor Exchange Programme is necessary for developing the professional competence of the region's maritime tutors as many of them come straight from a sea-going career into a teaching position and therefore have no formal training in education, curriculum development or delivery skills.[b] It is a collaborative programme involving maritime colleges in the PICs, New Zealand and Australia. The RMP has also developed several tutor-training programmes in basic teaching skills and additional technical skills; and (e) the Accident Investigation Secondment Programme allows the region's maritime inspectors the opportunity for on-the-job training on international obligations, legal frameworks for investigation, and types of investigation.

The dissemination of information throughout the region on matters relating to developments in the maritime industry and in international maritime legislation is an important function of the RMP. Raising awareness of safety and environmental protection issues are also key objectives. The more the maritime administrations in PICs know about the risks associated with operating in the maritime environment, the better placed they are to make informed decisions concerning the safety of those in their care. Consequently, the RMP produces a quarterly newsletter and maintains a STCW-95 compliant regional database system. Further, with the increased outreach opportunities provided by the Internet, the RMP has built a web site to help facilitate the dissemination of information to PICs. The site contains all RMP publications, generic legislation, contact details of maritime administrations and maritime schools in the region and information on the region's maritime industry and seafarers.

The Association of Pacific Islands Maritime Training Institutions and Maritime Administrations was established to promote cooperation between maritime training institutions, maritime authorities and ship owners in implementing uniform standards of training, examination and certification of seafarers within the region in accordance with international maritime conventions and regional codes. The Association consults closely with other interested government departments and maritime industries and holds an annual meeting.

Illegal, unreported and unregulated (IUU) fishing

Illegal, unreported and unregulated (IUU) fishing has severe negative impacts for the economy of developing countries, especially those small island developing States whose economies are overwhelmingly dependent on the exploitation of fisheries resources. The challenge posed by IUU fishing requires a global response. Developing countries such as those in the western and central Pacific experience greater difficulties in dealing with IUU fishing because of their limited resources. Their problems are exacerbated by the large area of ocean space that they have to control and the migratory nature of fish stocks, and the mobility of the fishing vessels that target these stocks. The fishing industry has also become more highly organized and sophisticated. Countries cannot unilaterally respond to the problems of IUU fishing because of the transnational nature of the fishery and the vessels that exploit the fishery. Thus, international cooperation is called for to address the problems of IUU fishing.

In recognition of the limitations suffered by developing countries in dealing with IUU fishing, various international instruments have called for special assistance to be given to developing countries. The 1995 UN Fish Stocks Agreement specifically calls on States to assist developing countries in monitoring, control and surveillance (MCS) and to provide funding for national and regional observer programmes. The FAO Code of Conduct for Responsible Fishing also enjoins States and intergovernmental organizations to give full recognition to the special requirements of developing countries. Any international plan of action on IUU fishing must reiterate the call to give special assistance to developing countries.

The problem of IUU fishing for developing countries has been manifested through the use of flags of convenience, reflagging of fishing vessels to the licensing State to avoid stringent conservation and management controls, illegal fishing on the margins of the EEZ and the high seas, and misreporting of catch. Developing countries who are dependent upon access fees for their economic development are particularly vulnerable because of distortions to the fees levels, which are conditional upon the volume of catch. There

are a number of tools available to developing countries to deal with IUU fishing. These include, port State enforcement, effective exercise of flag State responsibilities, harmonization of regulations so that fishing vessels are not subjected to different regulatory regimes, and transforming international fisheries law so that it is responsive to the needs of modern fisheries management.

Measures being undertaken to address these issues in the Pacific region. The South Pacific region has had a long history of cooperation and coordination in the development of MCS, conservation and management measures, which could provide a useful starting point for considering how developing countries deal with IUU fishing. Developing countries can learn from the experiences of the small island States in the South Pacific region who have developed low-cost, non-conventional yet innovative means of controlling the activities of foreign fishing vessels. Although the measures have not been developed to deal with IUU fishing per se, their broad application is pertinent in combating IUU fishing. These measures include the following: (a) Harmonization of terms and conditions of access for fishing vessels provides a framework for all fishing vessels to operate under uniform regulations. The framework includes provisions for: licensing; prohibition on trans-shipment at sea; maintenance of catch logs; access by authorized officers of the licensing State to catch logbook data and other information; regular catch reporting; use of observers; and requirements for vessel marking and identification; (b) The Regional Register of Foreign Fishing Vessels encapsulates in a common database all the relevant information about a vessel including its owner, operators and masters, call sign and port of registry. The information is updated annually so that changes to a vessel can be monitored. The Regional Register is not only used as a source of information; it is a useful tool in ensuring compliance by vessels that have violated coastal State laws but have left the jurisdiction of that State. No fishing vessel can be licensed unless it has good standing on the Regional Register. Good standing is a status which is automatically conferred on a vessel upon registration. The status may be withdrawn or suspended in certain circumstances, including where the vessel has committed a serious fishery offence. Once good standing is withdrawn or suspended, the vessel is effectively prevented from fishing in the region; (c) Effective flag State responsibility is fundamental to fisheries management. The exercise of flag State responsibility must not be limited to ensuring the application by vessels of agreed conservation and management measures; it should also encompass assistance in enforcement where there are allegations of violations; (d) Port State enforcement is recognized as an effective tool in ensuring compliance with conservation and management measures. Its manifestation in the South Pacific region is through enactment of legislation prohibiting the importation of fish caught illegally in another State's waters. The deterrent in such prohibition is that illegal fishing can be detected and prosecuted by a third party; (e) the Violations and Prosecutions Database contains information on vessels that have been involved in violations of the fisheries laws of the FFA member countries. This initiative responds to the lack of comprehensive information about the previous background and compliance records of fishing vessels, especially where the vessels have fished in other regions. Generally, licensing authorities are not aware of the historical record of fishing vessels that apply for a fishing licence and the information is not readily available or accessible to the licensing authorities; (f) Cooperation in fisheries surveillance and law enforcement is an effective means of dealing with IUU fishing especially where the fishery is transboundary. PICs cooperate under the framework of the Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement;[i] (g) Satellite-based Vessel Monitoring System (VMS) is capable of providing near real time position reports and is a tool that is available to licensing authorities to monitor the activities of fishing vessels. The VMS is an effective means of monitoring fishing vessels for developing countries. However, the VMS currently applies to licensed vessels only. Therefore a gap remains in the monitoring of the activities of all vessels operating in a region.

Matters requiring further action and suggested actions for enhancing coordination and cooperation at the intergovernmental and inter-agency levels. It will take some time for an effective framework to control IUU fishing to be developed. However, the development of a global database on fishing vessels, and a global violations and prosecutions database, both incorporating information held by existing regional fisheries bodies could be a first step in this process. The provision of technical assistance to strengthen boarding and inspection skills in developing countries would also be of assistance.

In the medium term the promotion of harmonized fisheries management and conservation schemes, the strengthening of regional and international fisheries management organizations to deny vessels access if they do not comply with agreed conservation and management measures and insistence on full flag State responsibility are actions that need to be considered.

In the longer term principles need to be developed that include making access to high seas resources conditional upon compliance with conservation and management measures prescribed by regional and international fisheries management organizations.

Status of coral reefs in the region

Coral reefs are one of the most important and extensive ecosystems within the Pacific region. Pacific coral reefs are globally significant in terms of biodiversity. When considered in conjunction with the interrelated coastal habitats, mangrove, seagrass and beach systems, their importance to the well-being of the Pacific people and their island environments cannot be overstated. They are a critical element of the complex and vulnerable tropical small island environment and are essential to the food security and economic development of PIC communities.

Most people in the region are strongly dependent upon coral reefs for food resources, cash income from reef fisheries, coastal protection, aggregates for building of roads and housing, as well as upon healthy reefs to support a growing tourism industry. Consequently, the social, cultural and economic prosperity of the Pacific region has been, and will continue to be, directly dependent upon the health of coral reefs and related ecosystems.

The International Coral Reef Initiative (ICRI) launched in 1995, the ICRI Renewed Call to Action (1998) and the Global Coral Reef Monitoring Network (GCRMN) — Pacific Network are focused on the fact that coral reef systems are under threat globally and that urgent action is needed to reverse this decline. These real and potential threats are many and of varied origins, and range from global climate change and related increase in severity and frequency of cyclones and coral bleaching, to over-fishing, pollution, sedimentation and habitat destruction and crown-of-thorn outbreaks.

Experience in the Pacific region. All PICs recognized the need to conserve marine habitats in their National Environment Strategies developed in preparation for the 1992 UNCED in Rio and in the more recently developed National Biodiversity Strategic Action Plans (NBSAPS). SPREP now assists these countries in implementing the NBSAPS and in their compliance with conventions and agreements relating to marine conservation and sustainable development.

Reef conservation is specifically reinforced in the Activity Plan for the Conservation of Coral Reefs in the Pacific Islands Region (1998 to 2002). The Plan is a partnership between countries and regional organizations and focuses on five areas: education and awareness; monitoring, assessment and research; capacity-building; legislation; and networking and linkages across people and programmes. SPREP has also organized coral reef monitoring training in several countries and coordinates the GCRMN Pacific Network, which is comprised of three Nodes, Micronesia, Polynesia and Central Pacific.

Coral reef monitoring capacity in the region varies. Countries have considerable interest in setting up monitoring programmes and improving coral reef management, but there is a critical lack of expertise and funding. There is also a strong need to involve the principal resource owners in the monitoring and management of their local reef areas. Therefore raising awareness of conservation and management ethics is of paramount importance.

There is no legislation in the Pacific that is dedicated to conserving coral reefs, although some governing fisheries resources may include coral reefs. Consequently, management of coral reefs is usually covered by several government departments in most counties. Traditional tenure systems remain strong and effective in many countries (Fiji, Samoa, Tokelau, Tuvalu, Solomon Islands and Vanuatu, Cook Islands), with customary management systems being revived to complement state legislation for better management of marine resources. The Pacific Regional Strategy for ICRI, which is endorsed by governments of the region, identifies 20 substantive issues which are grouped into five broad areas: coastal management; capacity-building; research and monitoring; coordination and review; and mechanisms for implementation. The strategy also provides a useful summary of issues and threats, which include: pollution from sewage,

fertilizers, biocides, toxic wastes, oil spills, solid wastes, freshwater runoff and other land-based sources of pollution; siltation due to soil erosion from inappropriately conducted land use practices (agriculture, forestry, mining, road building, site clearance); over-exploitation of coral reef resources (for example, commercially valuable species such as beche-de-mer, giant clams, trochus, certain fish and shell fish; live coral harvesting for aquariums and the tourist trade; mining coral heads for construction; subsistence fishing pressure); destructive fishing and collecting methods (for example poisons, explosives); land reclamation (including mangrove and reef-flat destruction), inappropriate coastal protection works, and unsound mariculture practices; coastal and marine development projects progressing without environmental impact assessment (EIA), or with inadequate EIAs; channel blasting and dredging activities; mining of beach and reef materials; coastal erosion and accretion; tourism activities and related developments; military testing, training and dumping (for example, nuclear testing, munitions disposal); and catastrophic events (for example, tropical cyclones, volcanic eruptions, earthquakes, tsunamis, coral bleaching, crown-of-thorns starfish infestations, severe El Niño-Southern Oscillation (ENSO) events, and possible climate change and sea-level rise).

Matters requiring further action and suggested actions for enhancing coordination and cooperation at the intergovernmental and inter-agency level. To address the threats and stresses identified in the Pacific Regional Strategy for ICRI, new approaches to management must be developed which draw upon the foundations of traditional use and practices and incorporate the understanding and procedures developed through relevant science and technology.

Capacity-building is a high priority for the region to set up coral reef monitoring in a series of long-term monitoring sites. This needs to be addressed at all levels, including local community stakeholders, NGOs, governments and the private sector. Further capacity-building and institutional strengthening is required in training marine taxonomists and strengthening the Marine Biodiversity Centre at the University of the South Pacific, to enable documenting of the biodiversity of coral reefs in all countries. This will improve knowledge and understanding of the biology of reef food fishes and result in sound sustainable fisheries management practices being introduced. The framework for the Pacific GCRMN was identified at the ICRI Regional Symposium on Coral Reefs held in New Caledonia in May 2000. Four Pacific Sub-regional Nodes and Node Coordinators were identified with SPREP responsible for over-all coordination. These Node Coordinators are responsible for supporting National Coordinators and local monitoring programmes. The Sub-regional Nodes are comprised of Polynesia Mana Node, IOI Pacific Islands Node, MAREPAC Node covering the Micronesian countries, and U.S. Coral Reef Task Force-US Territories Node. Funding support had been acquired for the MAREPAC Node (USAID) and the IOI Pacific Island Node (Canada C-SPOD), but funding is urgently required to continue support to these activities and also for other Nodes.

There is an urgent need to establish community based marine protected areas (MPAs) throughout the region. This is partly being addressed by the Pacific International Coral Reef Action Plan (ICRAN)—Action Phase Implementation. ICRAN Pacific is coordinated by SPREP and will concentrate on supporting a series of demonstration and target sites focusing on community based management of coastal resources as part of a Global Network of MPA sites within the UNEP Regional Seas Framework. ICRAN supported projects are currently being established in Marshall Islands, Fiji, Samoa, Tokelau and Solomon Islands. Implementation of the Global Action Phase of ICRAN is funded by the UN Foundation and will hopefully provide seed funding support for expansion of community based marine and coastal resource management initiatives in the region.

The development of appropriate national coastal zone management plans and policies is urgently required for all countries in the region, and legislation and regulations for the management of coral reefs need urgent upgrading to incorporate integrated coastal management and sustainable fisheries management.

Further, regional and national strategies for preservation of intellectual property rights on marine biodiversity must be developed.

Seabed minerals: Marine scientific research

SOPAC was established in 1972, originally as a United Nations project "The Committee for the Coordination of Offshore Prospecting in the Pacific", which essentially dealt with the coordination of marine

scientific research of non-living resources in the Pacific. Although SOPAC's role has since broadened with regard to ocean issues, to now include: developing resource policy and providing advice on the management and development of onshore and offshore mineral and aggregate resources; assisting decision makers and planners to develop coastal zones and extract resources while protecting them from degradation; assisting decision makers and planners to understand ocean processes, develop ocean areas and extract resources while protecting the ocean from over-exploitation and pollution. However, SOPAC still coordinates marine scientific research in the region for its island member countries.

Experience in the Pacific region. It is acknowledged that although the non-living marine resources currently contribute much less than the living resources to PIC economies, there is considerable potential for this situation to change. Cooperative research programmes over the last three decades have discovered occurrences of deep-sea minerals, such as polymetallic massive sulphides, cobalt-rich manganese crusts and polymetallic manganese nodules, within the EEZs of many PICs. Other non-living resources include hydrocarbons, which are currently important in Papua New Guinea and for which potentials may exist in coastal and offshore areas of the Solomon Islands, Fiji, Tonga and Vanuatu. However, extensive exploration is still required to prove this.

Major constraints to development and exploitation of these mineral deposits are the development of suitable and cost-effective deep-sea mining technology, as well as the resolution of the legal and boundary issues related to the ownership of the resources. These and other economic factors could be enhanced through better understanding and knowledge. It therefore follows that both ocean science and technology continue to have a clear and vital role to play. PICs can achieve this increased understanding of their resources, through encouraging researching States to continue to conduct research activities within their EEZs, actively participate in these activities, and ensure that they develop and maintain robust oceanographic databases.

In the context of deep-sea non-living resources, exploration licenses covering more than five thousand square kilometres, which were granted in 1998 by the Government of PNG, have been re-let for a further term of two years. Applications for exploration licenses have been lodged for other areas in PNG, as well as areas within the EEZs of other PICs. These developments have led to some conflicts between the public and private sectors and it is acknowledged that this needs to be addressed and resolved to enable both activities to continue in the region.

At the offshore mineral policy workshop, held in Papua New Guinea in February 1999, the following recommendations, which have implications for marine scientific research were agreed to: (a) Coastal States should establish a consent regime for marine scientific research (MSR) in accordance with the provisions of UNCLOS and the United Nations model guidelines on MSR. The regime should take into account the interests of the State in obtaining research data and information as well as the interests of investors in protecting the confidentiality of data regarding the resources obtained during exploration; (b) Measures should be taken to minimize potential conflict between offshore mining and other traditional and non-traditional uses of the sea; (c) Measures should be taken to minimize adverse impacts of offshore mining to the marine environment; (d) Coastal States should maintain a clear policy for the promotion of MSR in their EEZ and extended continental shelf; and (e) Relevant government representatives should participate in all phases of MSR, exploration and evaluation.

The Regional Workshop on the Issues and Challenges of Marine Scientific Research in the Pacific was convened in Port Moresby, Papua New Guinea in February 2001 to increase PIC's awareness of the value of marine scientific research and the legal and technical issues relating to marine scientific research within their exclusive economic zone. Key recommendations of the meeting were clustered under the following issue areas: the legal framework for conduct of MSR; capacity-building; transfer of marine science and technology, including data; and marine mineral exploration and MSR as parallel activities. They include: (a) Where appropriate SOPAC should facilitate the development, with inputs from PICs and other CROP agencies, appropriate regional marine scientific research guidelines within the framework of UNCLOS, and when requested assist in the development of national marine scientific research guidelines; (b) PICs should, when necessary and appropriate, develop and support MSR Committees/Agencies to provide oversight of MSR activities within their EEZs; (c) PICs should recognize the logistical limitations of some researching

States and acknowledge that some researching States may request special treatment of their applications if there are constraints that prohibit them from meeting the required deadlines; (d) As part of capacity-building the researching State is encouraged to provide opportunities for participants to broaden their experiences with scientists from other countries. Wherever possible the nominated participant should be part of the Science Team and actively involved in the actual research programme; (e) A regional standard should be established for digital data to ensure regional consistency in the provision of processed data and ensure that these data are provided in formats that fit regional needs. Detailed acquisition parameters should accompany all raw data provided by the research organization; (f) A regional metadata database should be established for all regional non-living marine resource data, including physical oceanographic data, to ensure that coastal and researching States can access the data; (g) PICs should adopt a flexible and facilitating policy with respect to biological prospecting. However, it should retain ownership of all samples in order to ensure that it may subsequently participate in any commercial benefits that might occur; (h) Within the context of marine mineral development SOPAC, as part of its participation in the CROP Regional Ocean Policy initiative, should promote the development of appropriate guidelines to assist member States in the formulation of policy and legislation that simultaneously provides for mineral development and parallel MSR; (i) PICs should adopt a proactive policy in defining the priorities of MSR and commercial development activities within their EEZs to minimize ad hoc decision-making; (j) PICs should be encouraged to review the applicability of their existing policy and legislation and where necessary modify or create new policy and legislation that provides for (i) a more comprehensive evaluation of the capacity of commercial investors in addition to (ii) encouraging a moratorium on selected commercial activities or (iii) allowing MSR to proceed prior to the licensing of areas for commercial purposes, in order to establish a comprehensive marine data base for decision-making, or (iv) allowing MSR and commercial activities to proceed in parallel.

Matters requiring further action and suggested actions for enhancing coordination and cooperation at the intergovernmental and inter-agency levels. International marine scientific research has been instrumental in improving the region's understanding of the types of non-living marine resources that occur in the Pacific Ocean. However, there is still a need to promote and encourage further international research in the Pacific region, both in areas already researched to ensure a better understanding of the nature and extent of already discovered mineral deposits as well as into new areas to locate other deposits.

As marine scientific research is costly, collaboration and cooperation between national, regional and international organizations is imperative if PICs are to be able to collect the data and information that is necessary to understand their non-living marine resource base. Consequently, PICs need to be receptive towards MSR requests for access to their waters. However, at the same time PICs need to develop and strengthen their internal procedures for handling MSR requests, to ensure that measures are taken to avoid the abuse of such access and to ensure compliance with relevant provisions of UNCLOS.

With regard to the issuing of deep-sea mineral exploration licenses, support from the international community is urgently needed to assist national and regional efforts in the Pacific to assess resource information and to develop appropriate policies and legislative regimes for this activity. As it is a recent development, national capacity needs to be built to ensure that deep-sea mineral exploration is managed, regulated and monitored effectively.

Marine pollution in the Pacific region

The ocean is a valuable resource to the people of the Pacific Region as an important source for food, a means of transportation and an opportunity for employment. Furthermore, clean beaches and clean and clear waters promote tourism, which in turn creates employment and generates foreign exchange. However, this pristine environment is often marred by marine pollution, much of it from land-based sources, but some of it from ships. This ship-based pollution comes in the form of oil, whether intentional or accidental discharges, or hazardous materials released from shipwrecks on the coral reefs. Other marine pollution comes from waste products from ships transiting the region, such as packaging material, food wastes, and abandoned fishing nets and lines. Other hazards to the marine environment come from the introduction of exotic species contained in ballast water taken on in distant discharging ports as well as anti-fouling paints containing toxic substances.

There are a number of international conventions dealing with the prevention of marine pollution, such as, MARPOL 73/78, 1969 Intervention Convention and its 1973 Protocol, London Dumping Convention and its 1996 Protocol and OPRC with respect to marine pollution; and CLC, 1992 Fund, HNS and Bunkers Convention with respect to liability and compensation.

In order for these marine pollution prevention conventions to be put into effect, they have to be incorporated into domestic legislation, together with the creation of mechanisms to deal with offences and stipulation of penalties. Only those States may accede to the convention in a meaningful manner.

Experience in the Pacific region. Some PICs are parties to the MARPOL 73/78 Convention and the Intervention Convention, while very few are parties to the London or OPRC Conventions. Some PICs are Parties to one or two of the conventions dealing with liability and compensation for marine pollution. However, not many States in the region have actually enacted legislation to give full effect to these conventions and make the provisions enforceable in national law.

The lack of national legislation relating to marine pollution and its prevention can be attributed to the limited expertise in this field within the PICs. Further, there is little or no experience in legislative drafting. Moreover, with limited human and financial resources, PIC governments tend to defer the issue of marine pollution, and it is not treated as a national priority.

Another reason that acceptance of any model legislation has been slow is that many of the government departments that deal with maritime matters are often small branches of much larger portfolios, often dealing with matters such as public works, communications, or land transport. Consequently, the shipping and marine pollution issues are lost in these larger, more politically sensitive sectors.

Shipping and ship-based marine pollution and the international conventions dealing with it are complex, technical documents. In many cases, senior decision makers are not familiar with the subject-matter and are hesitant to take these complex technical issues to the Cabinet or the Parliament and are equally hesitant to answer questions put to them in public forums. Hence, there is a tendency to put marine pollution and its prevention into the "too hard" basket.

Measures being taken to address these issues in the Pacific region. The Secretariat of the Pacific Community (SPC) and the South Pacific Regional Environment Programme (SPREP) have produced a model Marine Pollution Prevention Act for PICs to use as a precedent for their own domestic legislation. In addition to the conventions noted above, the model legislation deals with the problem of anti-fouling paints, the introduction of alien marine species and the removal of wrecks.

The SPC/SPREP model legislation has been circulated to all PICs and some of the territories, but enactment of the model into national legislation has been slow. Follow-up missions have been conducted to some countries, and in some PICs the appropriate marine pollution legislation is being developed and being moved through the legislative process.

Matters requiring further action. Tentative discussions have taken place between SPREP and SPC for information materials to be prepared and distributed to stakeholders and decision makers, explaining the need to develop and enact legislation dealing with marine pollution and its prevention, and simplifying some of the technical matters.

The recent CROP Legal Officers Meeting decided to take steps to provide background information to legal officers in local governments in several areas, including marine pollution and its prevention, as part of the larger effort to implement provisions of UNCLOS in PICs.

The SPC Regional Maritime Legal Internship Programme has been provided with funds for 2002 and will be reactivated. This provides a vehicle for both maritime administrators and government legal officers to gain experience in maritime matters, including marine pollution and its prevention.

International Waters Programme in the Pacific region

The Strategic Action Plan for International Waters of the Pacific Small Island Developing States (SAP) is a five-year programme that commenced in February 2000. The Programme is funded by the Global Environment Facility (GEF), implemented by UNDP and executed by SPREP. The SAP has both coastal and oceanic components.

The basis for developing a programme focus in these areas is found in the Action Plan for Managing the Environments of the South Pacific Region (1997-2000), the joint regional position prepared by the PICs for the 1992 UNCED and the National Environment Management Strategies (NEMS) prepared by PICs between 1990 and 1996.

The broad objective of the SAP is to achieve global benefits by developing and implementing measures to conserve, sustainably manage, and restore coastal and oceanic resources in the Pacific. The SAP identifies four high priority areas for immediate intervention: improved waste management; better water quality; sustainable fisheries; and effective marine protected areas.

Targeted action within these activity areas is proposed in management, capacity-building, awareness/education, research/information for decision-making, and investment, with institutional strengthening being considered an important element of both the management and capacity-building categories.

The oceanic component being executed through the SPC and FFA is to address issues associated with the conservation and management of the South Pacific regional tuna resource.

Highlights, in 2001, for the coastal component of the programme being executed through SPREP, include: acceptance of the inception report by UNDP; convening of the first Regional Task Force for the International Waters Programme (IWP); strengthened relations with the implementing agency, UNDP; completion of consultations with 13 of the 14 participating countries on IWP implementation; development of guidelines for the implementation of IWP demonstration projects; and development of a communications strategy for the programme.

Global Ocean Observing System (GOOS)

Scientific understanding provides the basis for sustainable use of the sea and its resources, for the amelioration of pollution and harmful practices, and for the prediction of weather, climate and ocean variability both regionally and globally. However, applying scientific understanding for these purposes depends critically on continuing observation, the scale and extent of which requires the close and integrated cooperation of individual economies in the pooling and enhancement of their observing systems.

The success of the cooperative international approach for research and observation in the equatorial Pacific over the past two decades resulting in the capacity to predict El Nino and La Nina events and to produce associated seasonal atmospheric forecasts provided the motivation for the Global Ocean Observing System (GOOS). GOOS is intended to provide a comprehensive framework for the regional and global coordination of ocean observations of many kinds and purposes. A priority for GOOS and its implementation has been the physical observations that are needed for improving weather and climate prediction capabilities. The benefits of enhanced observations are already identifiable.

Particularly important aspects of GOOS to PICs and territories are: fisheries (coastal and oceanic fisheries, mariculture developments); coastal management (health of reefs, beaches, water quality, mangroves); and weather and climate forecasts (extreme events, conditions for coastal zone management, and support for longer-term climatic forecasts).

Experience in the Pacific region. A GOOS capacity-building meeting for the Pacific was identified in the GOOS 1998 Plan, approved by the UNESCO/IOC Assembly and at the SOPAC Governing Council Meeting in 1997. The purpose of the meeting, held in February 1998, was to explore the possibility for developing GOOS in the region, identify capacity-building needs, and ascertain the interests of organizations serving the region, as well as the interests in GOOS, of the PICs.

An observing system in the Pacific Ocean, PacificGOOS, was formed in 1998 with SOPAC being designated the regional contact point for GOOS activities,[J] as the critical activities within the GOOS design framework relating to data gathering and database development are acknowledged as areas of expertise within SOPAC.

PacificGOOS, the Pacific regional component of GOOS, convened its second regional workshop in August 2000. The main objective of this workshop was to design concept documents for pilot projects for the coastal component of GOOS, with a view to developing, implementing and operationalizing them. Three pilot project concept documents on mariculture development, coastal water quality in port areas, and coral reef monitoring of key dive sites, which fit the

design requirements for CoastalGOOS, were developed.

The workshop recommended that attention be accorded to other regional GOOS initiatives, such as the development of a strategic plan to provide guidance and overall direction to PacificGOOS and, the promotion of the International ARGO Programme for the region.[k]

Since the PacificGOOS meeting in August 2000, all PICs and territories have provided their concurrence for autonomous ARGO floats to be deployed within their exclusive economic zones. Other regional contributions to the ARGO Programme include: facilitating port calls, as needed, for the ships and aircraft coming into the region for float deployment; providing assistance, as needed, in identifying and linking with regional organizations which might assist float deployment from vessels of opportunity such as fisheries vessels and patrol craft; providing a regional focal point for the deployment, science and applications aspects of the Programme. Furthermore, a PacificGOOS Strategy has been drafted to establish a GOOS Regional Alliance (PacificGOOS GRA). The Strategy seeks to: establish the mandate and procedures enabling a stable operating environment for the PacificGOOS GRA; review the contribution and participation of PICs and territories in the International ARGO Project, which is an important component of GODAE; build awareness amongst the wider global community about the needs for GOOS data and products in PICs and territories, to engender interest, and to widen support and assistance to the PacificGOOS GRA; develop detailed design documents for the three CoastalGOOS pilot project concepts outlined above, and actively seek funds for their implementation; fill knowledge gaps prevailing in the Pacific region concerning existing GOOS components (such as identifying all relevant GOOS data and products relevant to oceanic fisheries).

Matters requiring further action and suggested actions for enhancing coordination and cooperation at the intergovernmental and inter-agency levels. It has already been widely acknowledged at the international level that operational ocean observing initiatives will require substantial international collaboration if they are to be successful, as no single economy can afford to cover one ocean basin on its own. This is especially true for the Pacific Ocean, the largest ocean in the world with the majority of its custodians being small island/large ocean developing States. It is therefore imperative that collaboration, cooperation, and both financial and in-kind support be accorded to the region, if GOOS is to become a viable and successful resource planning and management mechanism in the future.

At the regional level the following GOOS issues have been identified as requiring attention: securing financial and in-kind support and assistance to commence implementation of key components of the PacificGOOS Strategy, as articulated above; completion of an inventory of GOOS related data, currently being collected in the region by national and regional organizations, and by countries and organizations outside the region to facilitate development of the PacificGOOS GRA. This cannot be undertaken with existing resources and will need to be carried out as a consultancy. Funds are urgently needed to initiate this programme prior to the next PacificGOOS meeting planned for the last quarter of 2002; securing international financial and in-kind support to convene an important Pacific regional workshop on Applications of Ocean Observations for Pacific Island Countries and Territories, currently scheduled for the last quarter of 2002, in Nadi, Fiji. The purpose of the workshop would be to: review potential applications of subsurface ocean observations, including those to be collected by new sources such as ARGO profiling floats, which can be of benefit to the Pacific Island Countries. Applications include: seasonal to inter-annual climate forecasting; understanding sea-level change; assessment and prediction of the health of coral reefs; fisheries population modelling; basic research in ocean variability and atmosphere-ocean interaction; and secondary education, advocacy and awareness; (b) identify appropriate data products and services requirements, for each of these applications, determine timeliness criteria for their delivery, and assess the extent to which these requirements are presently being met, with regard to requirements for improvements and particularly in instances where the International ARGO Project can contribute; and (c) establish linkages between the developers and the users of (more improved and appropriate) products and services.

Notes

[a] FFA = Forum Fisheries Agency; PIF = Pacific Islands Forum; SOPAC = South Pacific Applied Geoscience Commission; SPC = Secretariat of the Pacific Communities; SPREP = South Pacific Regional Environment Programme; SPTO = South Pacific Tourism Organization; USP = University of the South Pacific.

[b] This workshop, the second regional workshop on UNCLOS, was organized by the Commonwealth Secretariat and the regional organizations.

[c] The draft Policy seeks to draw together all the various regional decisions, recommendations and legal instruments that have already been agreed by Pacific Islands Countries and Territories, to cover the management of Pacific Ocean-related activities. It recognizes that a high degree of regional solidarity and consensus already exists on many ocean issues, through existing regional institutions and conventions including: marine environmental protection; marine pollution; highly migratory fisheries management; integrated coastal zone management; marine scientific research; sea level rise; and shipping. It acknowledges that, to a large extent, most of the requirements for what may be covered in a Regional Ocean Policy already exist in the Pacific.

[d] The following Pacific Island Countries have been identified as having the potential to claim an extended continental shelf: Federated States of Micronesia; Fiji; Papua New Guinea; Solomon Islands; and Tonga.

[e] The Maritime Boundaries Delimitation Project was implemented by the Forum Fisheries Agency in 1990 until December 2000. It has since been transferred to SOPAC. Funding assistance from the Government of Australia for the Inception Phase of the Project was approved in October 2001.

[f] This is estimated to be approximately 25 per cent and 30 per cent of GNP in Kiribati and Tuvalu respectively. Seafarers from Fiji, Papua New Guinea, Samoa and Tonga also sail on foreign ships and remit funds to support their families, which are still important, although contributing less to GNP in relative terms. Seafarers in the Marshall Islands, Solomon Islands and Vanuatu also obtain employment on local and foreign fishing vessels, thereby contributing to the national economy.

[g] The Director of the New Zealand Maritime School and the Principal of the PNG Maritime College are both senior maritime education professionals who are willing to act in a mentoring role. Other schools in the region are also available for this programme, in particular Vanuatu whose head of school is also a senior education professional.

[h] Future developments may include teaching the course "in country" and running tutor exchange programmes within the region to allow tutors to broaden their experience. Individual tutors are now also understudying tutors from New Zealand and Australia when they undertake RMP funded training in the region.

[i] The Niue Treaty allows a Party, by way of a subsidiary agreement, to permit another Party to extend its fisheries surveillance and law enforcement activities to the territorial sea and archipelagic waters of that Party. The Treaty also allows two or more Parties by way of a subsidiary agreement to cooperate in the provision of personnel and the use of aircraft or other items of equipment used for fisheries surveillance and law enforcement purposes. In recognition of the need to share the use of surveillance personnel, the Treaty permits the cross-jurisdictional exercise of enforcement powers of surveillance officers.

[j] A signed memorandum of understanding exists between SOPAC and UNESCO/IOC.

[k] PICs recognize that the ARGO Programme will result in significant improvements in our understanding of global climate and ocean processes, and will also contribute to a better understanding of the currently under-observed Pacific Ocean. For PICs, ARGO will widen the scope for more detailed prediction of the frequency and geographic incidence of tropical cyclones, coastal rainfall (and its effect on nearshore ocean health), variation in boundary currents, and ocean-climate related changes in fish populations, algal blooms and reef ecology. It will also contribute to the more certain detection and anticipation of regional climate change both in the atmosphere and the oceans as well as the profound implications such changes must have for the viability of Pacific livelihoods and economies.